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# Columbia Center on Sustainable Investment

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## *Employment from Mining and Agricultural Investments*

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How Much Myth, How Much Reality?

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Kaitlin Y. Cordes, Olle Östenson, Perrine Toledano

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## ABOUT THE COLUMBIA CENTER ON SUSTAINABLE INVESTMENT

The Columbia Center on Sustainable Investment is a joint center of Columbia Law School and the Earth Institute at Columbia University and a leading applied research center and forum for the study, practice and discussion of sustainable international investment. Our mission is to develop and disseminate practical approaches and solutions to maximize the impact of international investment for sustainable development. CCSI's premise is that responsible investment leads to benefits for both investors and the residents of host countries. Through research, advisory projects, multi-stakeholder dialogue and educational programs, CCSI focuses on constructing and implementing a holistic investment framework that promotes sustainable development and the mutual trust needed for long-term investments that can be practically adopted by governments, companies and civil society.

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## Table of Contents

<b>EXECUTIVE SUMMARY</b>	<b>4</b>
<b>INTRODUCTION</b>	<b>13</b>
<b>SECTION 1. EMPLOYMENT NUMBERS: TERMINOLOGY, METHODOLOGY AND CONTEXT</b>	<b>16</b>
1.1 Direct, indirect, and induced employment and other linkage effects	16
1.2 Comparing multipliers	20
1.3 Context counts: the many factors that affect job creation	23
1.4 Incentives and disincentives to exaggerate job creation	32
<b>SECTION 2. MINING EMPLOYMENT NUMBERS: NUANCES AND COMPLICATIONS</b>	<b>34</b>
2.1 When do the jobs come?	35
2.2 Mining-related job creation: what jobs and for whom at the local level?	36
2.3 Socio-economic change and net employment impact	40
2.4 Closure of the mine	47
2.5 Conclusion: Optimizing the job “impact” of mining investments	48
<b>SECTION 3. NUMBERS DO NOT TELL THE WHOLE STORY: THE NUANCES OF EMPLOYMENT FROM LARGE-SCALE AGRICULTURAL INVESTMENTS</b>	<b>49</b>
3.1 What jobs and for whom?	50
3.2 Who usually benefits?	55
3.3 What impact on local communities’ overall livelihood strategies?	60
3.4 Conclusion	66
<b>SECTION 4. GOVERNMENT POLICIES FOR JOB CREATION</b>	<b>67</b>
4.1 Maximizing the long-term development impact of and employment creation from mining investment	67
4.2 Maximizing the impact of agricultural investment for sustainable development: support for “jobs” and support for livelihoods	87
<b>CONCLUSION</b>	<b>99</b>

## Executive Summary

Employment creation is often seen as a key benefit of investment in natural resources. However, this benefit sometimes falls short: job estimates may be inflated, governmental policies may fail to maximize employment generation, and, in some cases, investments may lead to net livelihood losses. A more thorough examination of employment tied to mining and agricultural investments is thus useful for assessing whether and how employment from natural resource investments contributes to sustainable economic development—a particularly timely topic as countries consider how they will achieve the Sustainable Development Goals adopted in 2015.

This report aims to clarify the processes and impacts of job creation driven by large-scale mining and agricultural investments,<sup>1</sup> and to suggest how policies can improve employment outcomes. While investments in mining and agriculture share some characteristics, including reliance on natural resources and some location-specificity, they also differ in significant ways. The report does not aim for a full comparison of such investments, but rather identifies similarities or differences that can contribute to a better understanding of their respective roles for employment.

### Employment numbers: Terminology, methodology, and context

Assessing or comparing employment impacts from natural resource investments is complicated. There is no universal standard for measuring job creation.

Employment generated through natural resource investments can be created directly, indirectly, or through induced effects. Direct employment generally counts the investor’s employees and on-site contractors, while indirect employment includes off-site contractors, suppliers and their workers, and jobs that arise in relation to social investment activities. Induced employment results from the spending effect of direct and indirect employment and can often be far higher than the direct or indirect effects. Large projects may also lead to additional employment through linkages other than those flowing from production or consumption, such as through

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<sup>1</sup> The discussion of agricultural investments focuses primarily on large-scale investments that require some transfer of land use rights, such as concessions for plantation agriculture. Sometimes described as “large-scale land-based investments” or “large-scale land acquisitions,” such investments also occasionally incorporate business relationships with smallholder farmers, such as through outgrower programs. We focus on these types of investments both because proponents of such investments, which are not without controversy, often point to employment creation as one related benefit, and because such investments share more commonalities with mining investments than other types of investment in agriculture, such as pure contract farming schemes.

infrastructure investment. The lack of a universal standard regarding how employment numbers are counted within each of these different types of employment complicates assessments and comparisons of anticipated or actual job creation arising from investments.

Additional complications arise from the complexities inherent in calculating the multiplier effect. Multipliers are used to estimate how an initial increase in economic activity—for instance, an increase in the output of a particular commodity—reverberates throughout the economy and translates into more indirect and induced employment. While multiplier calculations of indirect and induced employment from mining and agricultural investments can offer useful estimates, they should be viewed with caution, particularly since it is difficult to compare results between projects.

In the mining industry, factors influencing the job creation potential of an investment include:

- the type of ownership, with publicly-owned mines often employing more workers than market-driven companies;
- the size of the mine;
- the mining life cycle phase, as employment levels are much higher during the construction phase than during the production phase, with the types of jobs also changing as a project shifts phases;
- the type of mining operation, as underground mining typically generates higher employment than open-pit mining;
- the type of commodity being extracted, as well as the mineral grade; and
- the mine's need for the construction of ancillary infrastructure.

For investments in large-scale agricultural projects, factors that affect the number of jobs generated include:

- the types of crops, as the labor intensity linked to different crops leads to widely divergent employment needs;
- the level of mechanization, with highly mechanized projects generating fewer direct jobs per hectare;
- other methods of production, such as the high use of inputs, which can decrease labor requirements;
- specific project contexts, such as soil fertility or water availability;
- links to agro-processing, as value-addition or processing activities can create greater employment opportunities; and
- the incorporation of opportunities for smallholders, such as outgrower schemes, which may decrease the numbers of waged jobs but can dramatically increase the number of livelihoods supported by a project.

These various factors complicate generalizations regarding the job creation impact of investment in mining or agricultural projects.

## **Mining employment: Nuances and complications**

In addition to understanding the types of employment generated by investments in the mining sector, it is also important to examine who benefits from such jobs, as well as what happens to the economic and social fabric of a mining region when investment occurs. While host communities reap economic and social benefits due to, for example, higher incomes, negative consequences can also arise.

### *What jobs and for whom?*

While many mining projects commit to hiring local workers through preferential employment policies, the meaning of the term “local” varies. At the national level, “local” may simply refer to a citizen of the country; yet within the project area, the term may be interpreted to describe a person originating from and resident in the area in which the project is situated. In this context, recruitment may well be conducted locally, but it may not be a “local” who is recruited.

Local disappointment with employment opportunities is thus common. Despite a mine opening, local unemployment may persist due to a mismatch between the skills required by the investor or its sub-contractors and the skills possessed by the local population. Indeed, trends towards increased mechanization and automation mean that less manual labor is needed and that remaining jobs increasingly require sophisticated training. In addition, labor needs shift depending on the project phase, with low-skill labor needed primarily during the construction phase. The share of the local population that succeeds in finding employment with the mine might thus be relatively small.

Disappointment in job opportunities may be exacerbated by the potential for increased income inequality at the local level, as mining-generated employment has the potential to increase income beyond what could have been earned in alternative livelihoods. To mitigate this potential friction, some companies have adopted recruitment policies that aim to spread income more evenly, such as by distributing jobs between households and between different local groups.

A lack of requisite skills or access to finance in local communities can also limit the magnitude of indirect employment creation in the local area. If companies believe that their procurement

needs cannot be met in the host country, they may look to source from abroad, thus reducing indirect employment generation at the national and local levels.

### *Socio-economic change and net employment impact*

Large-scale mining has drastic socio-economic impacts on the surrounding area. Employment and other opportunities often draw people to a mining region, leading to economic, physical, environmental, and social changes.

In-migration can bring benefits to local communities. For example, increased demand for goods and services can provide a boost to local businesses and the local economy, while in-migrants that bring new skills and resources can help host communities expand their capacities, skills, and knowledge. Not all aspects of in-migration are positive, however. Negative impacts include increased competition over jobs and resources; higher local inflation; and strains on infrastructure and on the environment.

When mining companies appropriate inhabited land for their operations, local communities are usually displaced and resettled. Resettlement—particularly when not carefully designed and if not coupled with the provision of comparable or better land, or other efforts to support renewed livelihoods—can severely disrupt livelihoods.

Artisanal and small-scale mining (ASM) can play a vital role in reducing poverty, although is often associated with environmental damage and other negative impacts. The development and operation of a large-scale mine can lead to significant losses of ASM jobs, which are generally not offset by increased employment in large-scale mining.

Every phase of mining, from exploration to closure, poses potential environmental threats to local livelihoods. Readying mine sites frequently requires clearing land and displacing surface and groundwater. Extracting and beneficiating ores, as well as subsequent waste disposal, uses significant amounts of water, and also holds the potential to contaminate water sources. These and other negative environmental spillovers of mining projects can disrupt local livelihoods and forms of subsistence and income.

Large-scale mining projects generally offer few direct employment opportunities for women, due in part to mismatched skills and a lack of accommodation for family and childcare responsibilities. This can be especially problematic given that women may be particularly affected by land loss resulting from mining projects. However, women often fill indirect and induced jobs tied to mining, such as laundry, catering, and agricultural production. Thus, the opening of a new mine can lead to localized structural changes in labor participation for

women, with a decline in agricultural self-employment leading women to either shift to the service sector or leave the labor market altogether. Such structural changes are not necessarily reversible once a mine closes. Women are not the only ones who feel the effects of a mine closure, of course, and stakeholders are not always prepared for this phase and its corresponding reduction in employment opportunities.

## **Employment from large-scale agricultural investments: Nuances and complications**

Understanding the socio-economic issues tied to employment is equally important in the context of large-scale agricultural investment. These issues, which can affect sustainable development outcomes, should be incorporated into any assessment of the potential job creation impacts of large agricultural investments. However, local job impacts and job quality can be very context specific, and efforts to generalize often mask critical nuances. Assessments are further complicated by other factors: for example, over which timeframes should one measure outcomes, or from which perspectives should a situation be evaluated?

### *What jobs and for whom?*

Job estimates for agricultural investments often do not specify whether the jobs that will be created are permanent or casual, year-round or seasonal, yet research indicates that casual or seasonal labor comprises a significant proportion of the jobs created through large agricultural investments. While seasonal jobs can sometimes provide a complementary livelihood strategy for rural dwellers, workers who rely on such jobs generally find themselves in insecure employment situations. In addition, agricultural jobs often pay low and inadequate wages, although whether wages are more or less attractive than other existing options remains highly context-specific.

As with mining investments, the jobs created through agricultural investments may not always benefit workers from the local community. This is particularly true for any higher skilled jobs that are created. Yet significant numbers of low-skilled jobs are also often taken by domestic or foreign migrants. In such situations, the corresponding in-migration can have both positive and negative effects, just as with in-migration encouraged by mining investments.



### *Socio-economic change and net employment impact*

Assessments of the employment impact of large-scale agricultural investments should consider whether waged job creation arises at the cost of destroying non-waged labor opportunities. In some cases, the number of livelihoods affected by the investment might be diminished rather than augmented.

Understanding the longer-term labor impact of large-scale agricultural investments is difficult: direct jobs may increase or decrease as operations are established, while indirect and induced employment creation will help shape, and in turn will be shaped by, an increasingly monetized local economy. Yet existing qualitative assessments highlight the real possibility of net livelihood losses—at least in the short-term—when agricultural investments take place on land that was previously used for smallholder agricultural production or other livelihood activities.

Moreover, not only might livelihood loss lead to fewer individuals being able to sustain their livelihood strategies, but it may also mean that, in some contexts, former smallholder farmers who have transitioned to waged work on the plantations created by the investment earn less than they had as smallholders. The situation is rendered more complex when jobs created by an investment are not offered to those who have lost the most due to it, leaving some individuals better off as waged workers and others in the same area worse off, having lost land or suffered “economic displacement” through other disruptions to livelihood strategies.

Large-scale agricultural investments can affect women differently than men. In many low- and middle-income countries, women play significant roles in agricultural production, through both independent farming and waged labor, giving rise to what has been described as the “feminization” of agriculture. Whether women benefit from employment opportunities arising from agricultural investment is context specific, influenced by preexisting social norms and practices around labor. In addition, the gendered ways in which some commercial farms employ women and men can have both positive and negative impacts. For example, gendered roles may encourage the increased employment of women, but may limit such employment to work that is more hazardous or less compensated. Aside from questions of waged labor, large-scale agricultural investments can have particular impacts on women’s livelihood when the investments impede access to productive resources on which women rely. Any specific investment can thus have mixed impacts for local women, providing some benefits (such as new sources of cash income) while simultaneously producing certain harms (such as livelihood losses or increased labor burdens).

Although many agricultural projects could theoretically last indefinitely, they do close (or fail) for various reasons. These closures affect linked employment opportunities. Just as with mining investments, post-closure planning thus constitutes an important best practice for agricultural

investments. Host governments and other stakeholders should pay particular attention to what will happen to the land once a project ends; in many cases, providing mechanisms for formerly displaced people to gain renewed access to the land may be the most appropriate option.

## Government policies for job creation

For governments seeking to increase the employment impacts of natural resource investments, realistic assessments of the potential employment effects are an important starting point. This includes considering the potential direct, indirect, and induced employment impacts, as well as the corresponding socio-economic concerns and potential negative consequences for livelihoods.

Against this backdrop, governments can strive to design appropriate policies, plans, and strategies that strengthen positive impacts and mitigate negative ones associated with investment in mining or agriculture. In terms of strengthening positive employment impacts, such policies may aim to increase the number of direct jobs supported by an investment, to generate indirect or induced employment, or to tie investments to local development more generally.

To maximize the creation of direct jobs tied to mining and agricultural investment, governments can:

- consider cost-effective policies to attract responsible investment that leads to increased employment;
- support subnational-level governments in managing their share of revenues, including through policies focused on employment impacts; and
- cooperate, in partnership with companies, on training programs that support individuals' abilities to benefit from the job opportunities offered by investment projects, potentially coupling such programs with agreed targets that encourage the employment of local or national workers.

To maximize the creation of indirect jobs tied to mining and agricultural investment, governments can:

- focus on policies aimed at increasing linkages, either backward through local content requirements or forward through measures intended to increase further processing, while ensuring that such policies are based on realistic assessments of local capabilities and are in conformity with relevant international rules; and

- refrain from granting investors the right to import inputs duty-free where such goods are available locally.

To maximize the creation of induced jobs tied to mining and agricultural investment, governments can:

- support subnational-level governments in developing capacity to plan for diversified economic development, as well as to deliver the public services that are needed by citizens and required for economic growth;
- support or encourage infrastructure investment tied to mining or agricultural projects, which can help other sectors to grow and/or can support improved livelihood activities; and
- ensure that appropriate consultation mechanisms underpin local development planning.

In addition, governments can require sustainable closure plans for any large-scale investment, including strategies for mitigating the negative employment impacts of project closure or failure. To address the particularly dramatic impacts of commodity price downturns, governments can also work with companies to establish programs focused on mitigating job loss in such contexts.

Moreover, governments working to develop policies to improve employment generation from natural resource investments can ensure that such policies are grounded in and shaped by consultations with communities. This can strengthen such policies while also managing community expectations.

In the context of agricultural investment, policymakers should also keep in mind that agricultural investment predicated on land acquisition is only one of many approaches for investment in agriculture. As the type of agricultural investment model used may affect its impact on job creation and livelihoods, governments should think carefully about the type of investment they wish to attract and encourage. Apart from investments that require land transactions, other options for public or private investment include investing in smallholder production, or using a more inclusive business approach to incorporate and support smallholder farmers. Such models may be more beneficial from a number of perspectives, including employment outcomes.

As employment impacts are context-specific, so are policy solutions. Efforts to optimize the employment impact of investments thus must be tailored to the particular contexts for which they are proposed. In some situations, this may require a more nuanced understanding of the

margins of maneuver for investors in terms of adapting their employment practices to national and local needs. In other situations, governments may need to undertake more targeted efforts to ensure that local development planning is used to maximize the potential employment and growth impact that can result from induced employment, which is not always sufficiently incorporated in such planning. A thorough understanding by governments of the relevant contextual variables related to employment from natural resource investments can help both in designing policies and evaluating potential investments.

## Conclusion

Large-scale mining and agricultural investments create jobs, but how many and with what impact is not always clear. A deeper understanding of the topic helps policymakers, citizens, and others assess employment claims made in the context of investment in mining or large-scale agricultural projects. It also presents governments with a difficult task: developing approaches that are aligned with best practices but fine-tuned to local contexts, and which improve the direct, indirect, and induced job creation outcomes of investments while addressing the disparate needs and expectations of both investors and citizens. Although complicated, such efforts are important for ensuring that the expected employment benefits of such investments do indeed materialize.

## Introduction

The employment potential of investments in extractives and agricultural projects is often advanced both by governments and investors in support of large-scale investments in natural resources. However, investments do not always deliver their promised benefits, as a result of inflated job estimates or poor policy planning. In some cases, greater clarity is needed in how employment estimates are calculated in order to facilitate more informed assessments by the public. Even where benefits correspond to expectations, however, better-targeted policies on the part of both governments and investors<sup>2</sup> would allow the full potential for employment generation to be better realized. In any case, the formulation and analysis of policies for employment in large-scale mining and agricultural investment cannot aim at simply maximizing employment numbers. Policymakers and other stakeholders need to consider qualitative factors and additional nuances, such as the quality of jobs, including job security and wages; distributional impact and who benefits; and the net livelihood impacts of investments.

This report examines the arguments made about the job creation impact of mining and large-scale agricultural investments, as well as how such employment contributes to sustainable economic development.

We explore these issues in three ways. First, we review the definitions, terminology, and methodologies used to describe and analyze job creation in both industries, as well as factors that influence job creation (Section 1). Second, we address the “net value” of job creation, underlying which are questions about the socioeconomic impacts of such investments and their broader influence on sustainable economic development (Sections 2 and 3). Third, we examine how governments have attempted to ensure that investments result in sustained job creation and development, and suggest policy recommendations to help improve such efforts (Section 4). We conclude with some policy recommendations (Section 5).

Our objective is to clarify the processes and impacts of job creation driven by large-scale mining and agricultural investments,<sup>3</sup> and to suggest ways in which public sector actors

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<sup>2</sup> This report uses “investors” and “companies” interchangeably, with “companies” (or “operators”) used more in the mining context and “investors” used more in the agricultural context to reflect the more commonly used terminology within these spheres.

<sup>3</sup> Our discussion of agricultural investments focuses primarily on large-scale investments that require some transfer of land use rights, such as through a concession, lease or purchase. These investments, such as for plantation agriculture, are sometimes described as “large-scale land-based investments” or “large-scale land acquisitions.” Such investments sometimes incorporate business relationships with smallholder farmers, such as through outgrower

can tailor policies to improve employment outcomes from such investments. We do not attempt to systematically compare investments in mining and agriculture, but we identify similarities or differences where we believe that they may contribute to a better understanding of the two industries with respect to their role for employment creation.

At this point, it would be interesting and useful to provide some reasonably reliable estimate of the global magnitude of employment due to large-scale mining and agricultural investments. Unfortunately, there are no good sources for such statistics. National employment statistics exist in most countries. However, differences in definitions and specificity mean that it is not possible to aggregate the numbers. Take, for example, mining employment statistics. Unlike the case of, for instance, an automobile factory, where everybody is counted as employed in vehicle manufacturing, not everyone working on a mine site is always counted as employed in mining. Rather, some may be counted as construction workers, because construction companies often carry out a large part of the work in building and operating a mine, or as transportation employees, because they operate equipment used to transport the finished mineral product.

Moreover, since relevant employment numbers usually include both mining and quarrying, they are of limited use in determining the numbers directly attributable to large-scale mining. Sources of worldwide statistics, such as the International Labour Organization (ILO)'s LABORSTA database, cover only some countries and are often between five and ten years old. A relatively recent estimate put global direct employment in formal mining at 2.5 million and 15-20 million in informal artisanal mining.<sup>4</sup> This looks like a fairly accurate estimate, and our own rough calculations arrive at a similar result.<sup>5</sup> Notably, employment has probably increased over the past decade along with the dramatic increase in production—at least until the commodity

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programs. While debate over this type of investment has been ongoing for some time, some proponents of such investment continue to point to employment creation as a potential key benefit. Where we seek to distinguish land-reliant investment from other types of large-scale agricultural investment, such as large investment in pure contract farming schemes, the distinction is noted explicitly.

<sup>4</sup> International Council on Metals and Mining, "The role of mining in national economies," 2<sup>nd</sup> edition (2014), p. 6.

<sup>5</sup> Starting with the reasonable assumption that six metals (aluminum/bauxite, copper, gold, iron ore, lead, and zinc) account for the vast majority of employment in metals mining, we selected four mines that we believe are roughly representative in terms of production per employee globally (CBG in Guinea for bauxite, Antamina in Peru for copper, LKAB in Sweden for iron ore, and Tara in Ireland for lead and zinc). We then estimated total world employment in mining by multiplying the number of employees of these mines with the inverse of their share of world production. For gold, we used an estimate by the World Gold Council (WGC, "The social and economic impact of gold mining," 2015). The total employee number calculated this way is 1.8 million. Adding the metals not included (chromium, nickel, platinum, etcetera) should give around 2 million. Since total production volume of non-metallic minerals such as phosphates is about half of metal mining, we add another million. Finally, we add one million for coal mining, which accounts for about the same volume as metals mining, but which is more mechanized, for a total of 4 million.

price slump began to take effect late 2014/early 2015. Outside China, employment is actually likely to have increased at a higher rate than production, since there has been an observed decline in labor productivity for most minerals. This fall has been attributed mainly to the effect of higher prices, which have made possible the mining of resources that earlier would not have been considered exploitable (for example, because of low grades) and where productivity is therefore lower.<sup>6</sup>

Clarity around the employment generated by large-scale agricultural investments is even worse. While there are estimates of the number of people employed in agriculture on a global scale—approximately one billion<sup>7</sup>—there is no reliable estimate of the proportion of that number attributable to large-scale agricultural investments. It is presumably an extremely small percentage, given the limited role of foreign private investors, who are the most associated with the types of large-scale investments discussed in this report, in overall agricultural investment in low- and middle-income countries.<sup>8</sup> Due to the lack of transparency around recent and on-going large-scale agricultural investments, however, it is impossible to determine how many investments have occurred or are taking place,<sup>9</sup> let alone to estimate how many people are employed through them. Even assuming reasonably reliable data on land transactions for agricultural investments, reliable employment estimates would be difficult to develop, requiring additional knowledge of how much land has actually been put into operation.<sup>10</sup> Other complicating factors, such as the context-specificity of job creation tied to agricultural investment, are discussed in the following section.

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<sup>6</sup> See J.E. Tilton, “Cyclical and secular determinants of productivity in the copper, aluminum, iron ore and coal industries,” 27(1) *Mineral Economics* 1-19 (2014). Restructuring of the Chinese mining industry is likely to have led to a rise in labor productivity in that country, but we do not know if that effect fully offsets the productivity decline in the rest of the world.

<sup>7</sup> The ILO Global Employment Trends 2014 sector dataset notes that, globally, there were 990,916,000 people employed in agriculture in 2012, a predicted 1,001,364,000 employed in agriculture in 2013, and a predicted 998,133,000 in 2014. Dataset available at: [http://ilo.org/global/research/global-reports/global-employment-trends/2014/WCMS\\_234879/lang--en/index.htm](http://ilo.org/global/research/global-reports/global-employment-trends/2014/WCMS_234879/lang--en/index.htm) (last visited June 26, 2016).

<sup>8</sup> In low- and middle-income countries, farmers themselves are the biggest investors in agriculture, followed by governments. Foreign private investors, such as corporations, represent a much smaller proportion of investors in agriculture. Sarah K. Lowder, Brian Carisma and Jakob Scoet, “Who invests in agriculture and how much? An empirical review of the relative size of various investments in agriculture in low- and middle-income countries,” ESA Working Paper No. 12-09 (December 2012), p. 4.

<sup>9</sup> Indeed, there are no accurate numbers regarding the extent of large-scale land acquisitions, and numbers used by academics vary widely. The best effort to collect this information to date, the Land Matrix, claims to have information regarding more than 61 million has of land under concluded or intended deals. However, it also notes that its “data should not be taken as a reliable representation of reality.” For more information, visit [www.landmatrix.org](http://www.landmatrix.org).

<sup>10</sup> For example, taking the Land Matrix information at face value, one could presumably match concession sizes with types of crops planned and then, using crop-and-location-specific estimates of jobs per ha, calculate a rough estimate of how many jobs might be generated under known land transactions. However, investors do not always intend to use their entire concession area for production; for instance, only a small portion of a 100,000-hectare concession might be put into production at any given point. Estimates based on areas transferred under land transactions could

## Section 1. Employment numbers: Terminology, methodology and context

There is no universal standard for describing or measuring job creation. This complicates assessments and comparisons of the impact that mining or large-scale agricultural projects have on job creation. There is not even a universal standard for what constitutes a “job” or “employment”: while both are sometimes used more narrowly to refer only to waged labor, they are usually used more broadly to encompass any income-generating activity, whether salaried or not, including where income is not measured in monetary terms. While this report uses the latter definition, some employment calculations are limited to the former (which is usually easier to estimate).

The following section describes the various ways that employment is created and the difficulties of measuring and comparing employment numbers, particularly given differences in calculating multiplier effects. This section also draws on cases reported in the literature to illustrate the importance of context, as employment generated from mining and large-scale agricultural projects is influenced by a number of factors.

### 1.1 Direct, indirect, and induced employment and other linkage effects

Employment linked to an investment is primarily created in three ways: directly, indirectly, or through an induced effect.

- **Direct employment** normally includes the mining company’s or the agricultural investor’s employees and any on-site contractors.<sup>11</sup> Already at this level, the reality and the representation can vary from project to project and from study to study. For examples, studies of mining jobs may count only full-time jobs or both full-time and part-time jobs as direct employment.<sup>12</sup>

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thus grossly overestimate the number of jobs that might be created through the investment. Given our caution regarding overhyped job numbers, we decline to attempt such calculations ourselves.

<sup>11</sup> International Council on Mining and Metals, *Mining: Partnerships for Development Toolkit* (London: International Council on Mining and Metals, 2011), p. 103.

<sup>12</sup> For instance the Government’s Office of Planning and Budget Utah (Utah State Governor’s Office of Planning and Budget, *Multipliers for Utah, Utah State and Local Government Fiscal Impact Model* (Salt Lake City: Jul 2001), p. 3.) explains that in their records Employment includes full-time and part-time jobs and no adjustment is made for hours worked on the job whereas the ICMM’s toolkit (International Council on Mining and Metals, 2011, op. cit., p. 103.), states that only full-time employment counts.



- **Indirect employment** comprises three components: 1) off-site contractors working for the project; 2) suppliers, subcontractors, and their workers whose employment is attributable to business generated by the operation; and 3) employment generated in the region by social investment activities, including local business development, in which the mining operator or agricultural investor participates.<sup>13</sup>
- **Induced employment** results from the spending effect of direct and indirect employment. In other words, an induced effect occurs when direct and indirect employees spend their wages (for example, in shops, or on transport and public services. For mining projects in particular, the induced effect is generally far higher than the indirect effect, especially in the area immediately surrounding the mine. For instance, for the year 2007 in the Sepon mine in Laos, a study by the International Council on Mining & Metals (ICMM) reports an induced employment of 13,110 versus 3,155 people indirectly employed.<sup>14</sup> For the Obuasi mine in Ghana, another ICMM study describes an induced employment of 20,000-50,000 versus 1,000-5,000 in indirect employment.<sup>15</sup> This induced effect, however, may be lower (and direct or indirect employment correspondingly higher) if the mine or plantation provides its employees with accommodation, food, leisure, or other services, as employees then would not spend on such services, which instead would be provided or procured by the company.

When discussing employment effects, the terms backward and forward linkages are often used to describe the relationships between different economic sectors in a national or regional economy. Backward and forward linkages signify sectors that respectively deliver to and take deliveries from a particular sector.

One common problem when discussing the anticipated or actual job creation arising from investments, or even the number of existing jobs within a country's specific industry, is the frequent lack of clarity around whether employment numbers refer solely to direct employment, or also include indirect and induced employment. For example, researchers analyzing the employment generation of the Kenyan export-oriented horticulture sector have noted that it was "often cited that 500 000 people are employed in the horticulture industry in Kenya. However, the manner in which this figure was calculated is unknown. Worse still, it is not entirely clear what the figure

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<sup>13</sup> International Council on Mining and Metals, *Mining: Partnerships for Development Toolkit* (London: International Council on Mining and Metals, 2011), p. 86.

<sup>14</sup> International Council on Mining and Metals, "Utilizing mining and mineral resources to foster the sustainable development of the Lao PDR," *Mining: Partnerships for Development*, (April 2011).

<sup>15</sup> International Council on Mining and Metals, "Ghana: The Challenge of Mineral Wealth: Using Resource Endowments to Foster Sustainable Development," (July 2007).

refers to.”<sup>16</sup> The researchers explained that the uncertainty extended to whether this number discussed employment in the entire industry or just linked to export production, whether it was focused only on direct employment or also included indirect or induced employment, and whether it counted only full-time workers or also encompassed casual, temporary, or seasonal workers. Using firm-level data, the researchers estimated that fewer than 100,000 workers were directly employed in the Kenyan horticulture industry, a number “considerably below the often-cited figure of 500 000, suggesting that the latter figure may reflect the total number of beneficiaries of horticultural employment (either through multiplier effects [described below] or through being in the same household as someone employed in the sector), rather than the number of direct employees.”<sup>17</sup>

Large projects may also lead to additional employment through linkages other than those flowing from production or consumption. For instance, large mining projects typically require substantial investment in infrastructure, which often reduces transport and other transaction costs and therefore opens up commercial opportunities for local businesses with potential employment increases (see Box 1).

### **Box 1. Development corridors**

Regional development and industrialization policies in southern Africa have relied heavily on the concept of development corridors, formalized in the “Spatial Development Initiative” (SDI) model. This model is meant to address constraints imposed by infrastructure inadequacy, particularly related to transport and energy, which makes many natural resources uneconomical to extract. Corridors that group “stranded” but high-rent projects (generally for minerals and energy) could help collectively underpin necessary infrastructure investments through “use-or-pay” contracts with infrastructure providers.<sup>18</sup> Such corridors also offer opportunities to capitalize on mining investments in order to support agriculture.<sup>19</sup> Yet the requisite pooling of usage ideally requires cross-border collaboration, as resource terrains seldom follow political boundaries. Corridor development has been included in the Action Plan for the implementation of the African Mining Vision, and efforts to initiate integrated multi-state development corridors have been attempted across sub-Saharan Africa. Yet such corridors

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<sup>16</sup> John Humphrey, Neil McCulloch, and Masako Ota, “The Impact of European Market Changes on Employment in the Kenyan Horticulture Sector,” 16 *Journal of International Development* 63-80 (2004), pp. 72-73.

<sup>17</sup> Humphrey, McCulloch, and Ota, 2004, op. cit., p. 72-73.

<sup>18</sup> P. Jourdan, “Plan of Action for African Acceleration of Industrialisation: Promoting Resource-Based Industrialisation: A Way Forward.” Paper prepared for the African Union Commission, Addis Ababa (August 2008).

<sup>19</sup> Although not without controversy, as corridors have been accused of promoting land grabbing and other modes of investment that do not benefit smallholders. See, e.g., CGIAR, Independent Science and Partnership Council, ECDPM, and NEPAD, “Corridors, Clusters, and Spatial Development Initiatives in African Agriculture: Workshop Report” (Durban, Nov. 30, 2015).

have achieved limited success to date, mainly due to problems around cross-border coordination.<sup>20</sup>

The Maputo Development Corridor (MDC) is generally considered to be one of the more successful corridors. Built around the Mozal aluminum smelter near Maputo,<sup>21</sup> the corridor incorporated a local enterprise development program that aimed to promote the participation of local communities and to strengthen local supply chains. This program trained and mentored local small- and medium-sized enterprises (SMEs) to enable them to bid, win, and deliver on construction contracts in conformance with the requisite standards for the Mozal project. By some measures, this support to develop backward linkages has been successful. Factors underpinning this apparent success include the backing given by the Mozal smelter to direct its very large procurement spend to qualifying SMEs, as well as its involvement from the project's early stages. Notably, the program has involved screening and then selecting for industrial upgrading local SMEs where some initial supply capacity existed.

However, many of the participating SMEs were simply registered in Mozambique while importing most of their goods from South Africa (on average, about two-thirds of expenditure spent on "Mozambican" companies has gone into imports from South Africa).<sup>22</sup> Furthermore, it has been questioned if the MDC has achieved all of its objectives, particularly regarding broader based development: "...it emerges that the main focus and achievement of the MDC has been infrastructure development (the toll road, Maputo port, electricity, and the railway line) and the Mozal aluminium smelter (large-scale capital intensive with limited employment). Due to the transformation process and lack of capacity, the involvement of provincial and local government and institutions of civil society in local economic development and poverty alleviation as part of the MDC has been minimal..."<sup>23</sup>

Less tangible linkages that can help increase employment include the creation of synergies, such as clustering effects that lead to a geographic concentration of interconnected suppliers and associated institutions, and knowledge transfer.

Indirect and induced employment, as well as other linkages, are different expressions of the multiplier effect of direct job creation. Multipliers are estimates of how an initial increase in economic activity, for instance an increase in the output of a particular

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<sup>20</sup> H. Mtegha, P. Leeuw, S. Naicker, and M. Molepo, "Resources corridors: Experiences, economics and engagement: A typology of Sub-Saharan African corridors," *EI Sourcebook* (2012).

<sup>21</sup> This description is drawn from R. Goode, "Getting the Basics Right: Towards Optimizing Africa's Mineral Socio-Economic Linkages," paper prepared for the International Study Group on Review of African Mining Regimes (2009).

<sup>22</sup> C. N. Castel-Branco and N. Goldin, "Impacts of the MOZAL aluminum smelter on the Mozambican economy: final report," (Maputo, September 21, 2003), available at: [http://www.iese.ac.mz/lib/cncb/Mozal\\_and\\_economic\\_development.pdf](http://www.iese.ac.mz/lib/cncb/Mozal_and_economic_development.pdf) (last visited October 10, 2013).

<sup>23</sup> M.J. Roodt, "Borderlands and spatial development initiatives – The impact of regional integration initiatives in a Southern African crossborder region: The Maputo Development Corridor," in Instituto de Estudos Sociais e Económicos, *Southern Africa and Challenges for Mozambique* (2009).

commodity, reverberates throughout the economy and translates into more indirect and induced employment.

When calculated in the same manner, the multiplier effect enables relative comparisons of mining and large-scale agricultural projects. Indeed, in theory, within the limits of severe constraints that will be addressed in the following sub-section, the multiplier effect provides the ability to ascertain which mining or agricultural activities will have the largest economic impact.<sup>24</sup> While specific country and project contexts will dictate the linkages between various sectors, and thus the indirect and induced job creation resulting from investments, using the same method of calculating potential job creation facilitates generalized findings within countries.

## 1.2 Comparing multipliers

Multipliers are calculated in different ways and generated by different models, principally input-output (I-O) models or computable general equilibrium (CGE) models. The following paragraphs describe the complexities and difficulties of estimating multiplier effects and the resulting uncertainties surrounding estimates of employment impact and comparisons between projects. The aim is not to provide an exhaustive analysis of the problems associated with different ways of calculating multipliers, but to illustrate how different results can be obtained depending on the inherent assumptions of the technique used.

First, multiplier effects are often quantified using an input-output model. The I-O model “estimates the total economic impact of a project or economic shock by presenting estimates of direct, indirect, and induced impacts associated with the project or shock.”<sup>25</sup> The model uses input, output and final demand tables to capture a snapshot of an entire economy and the interrelationships of its industrial sectors at that point in time. The model relies on four rigid assumptions, which are often criticized for

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<sup>24</sup> Comparisons are nearly always misleading since *ceteris paribus* almost never holds, so one should be cautious in any such undertaking. But, for example, a series of studies undertaken for the International Finance Corporation using the same methodology to estimate the number of jobs and value-added that flowed from the IFC’s actual investments in Ghana and Jordan, as well as hypothetical investments in Tunisia and Sri Lanka, reveals that investment in labor-intensive sectors such as agriculture generally supports a higher number of jobs than investment in capital-intensive sectors such as mining. However, jobs in capital-intensive sectors were generally of higher productivity, so while investing in agriculture in countries with high unemployment levels may result in more significant job creation, investing in mining or other capital-intensive sectors “may lead to more long-term wealth creation and possible transformational effects.” Steward Redqueen, “Summary of Main Findings: Estimating the Socioeconomic Impact of IFC Financing: Macro Case Studies from Ghana, Jordan, Sri Lanka and Tunisia,” *Case studies for International Finance Corporation* (2012).

<sup>25</sup> Northwest Territories Bureau of Statistics, “NWT Input-Output Model – An Overview,” Government of the Northwest Territories (June 2006), p. 8.

being unrealistic: there is no supply constraint (and no opportunity cost of employment),<sup>26</sup> constant returns to scale, fixed input structure for each industry, and fixed output ratios among products produced. Yet in the context of mining development, for example, those assumptions are often not met: estimates of effects based on linear relationships estimated from historical data do not take into account the transformative impact of mining or scale effects. Nevertheless, I-O models often yield reasonably good estimates of employment effects and provide an anchor for the analysis of these effects.<sup>27</sup> More specifically, Armstrong and Taylor's seminal study suggest that input-output models may overestimate short-term output and employment effects but are good predictors of such effects over the long run.<sup>28</sup>

Computable general equilibrium models, which are less frequently used than I-O models and which use only national level data, do not suffer from the same constraints as I-O models. While CGE models use I-O tables to show the movement of commodities between industries, households, governments, importers, and exporters, they also employ a range of elasticity parameters to estimate economic impacts, thus avoiding the limitation of linear relationships.<sup>29</sup> This means that "a carefully constructed CGE model can represent more of the relationships among sectors in a national economy than an I-O Model (...)."<sup>30</sup>

The main limitation of CGE models is that there is no wide consensus around their appropriate structure and assumptions. In addition, the CGE structure and assumptions used by the model builder are rarely published. This opacity, described by some as a "black box," casts suspicion on the method.<sup>31</sup> Moreover, a CGE model requires better data, and the cost of acquiring higher quality data means that simple I-O models are often preferred in practice – and even those models are often considered ambitious.

Second, job classifications and outsourcing strategies disrupt the analysis. National accounts generally classify jobs according to the business of the employing company rather than the job performed. For instance, employees of civil engineering companies

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<sup>26</sup> O. Östensson, "The Employment Effect of Mine Employees' Local Expenditure," 27 *Mineral Economics*, Combined 2-3 (2014): "[...] the people employed would otherwise be unemployed and (...) therefore the opportunity cost of employing them does not have to be taken into account."

<sup>27</sup> Östensson, 2014, op. cit.

<sup>28</sup> H. Armstrong and J. Taylor, *Regional Economics & Policy* (Wiley, 2000).

<sup>29</sup> Douglas Frechtling and Egon Smeral, "Measuring and Interpreting the Economic Impact of Tourism: 20/20 Hindsight and Foresight" in *Tourism Research: A 20-20 Vision* (Oxford, England: Goodfellow Publishing, 2010), p. 5.

<sup>30</sup> Douglas C. Frechtling, "Exploring the Full Economic Impact of Tourism for Policy Making: Extending the Use of the Tourism Satellite Account through Macroeconomic Analysis Tools," UNTWO, available at: [http://cf.cdn.unwto.org/sites/all/files/unwto\\_paper\\_t20\\_france.pdf](http://cf.cdn.unwto.org/sites/all/files/unwto_paper_t20_france.pdf) (last visited June 26, 2016).

<sup>31</sup> Ian Sue Wing, "Computable General Equilibrium Models and Their Use in Economy-Wide Policy Analysis: Everything You Ever Wanted to Know (But Were Afraid to Ask)," Cambridge, MA: MIT Joint Program on the Science and Policy of Global Change (September 2004), p. 2.

contracted by the mine are usually not classified as employed in mining.<sup>32</sup> Similarly, a company that outsources little is counted as making a large contribution to direct sectorial employment, but is seen as creating few indirect jobs, whereas a company that outsources a lot makes only a small contribution to direct employment but will appear to generate many indirect jobs.<sup>33</sup> For instance, the difference between the high multiplier effect (including induced effect) of the open-pit large-scale Escondida copper mine (5.7) as compared to its counterparts, such as the Candelaria mine (1.76), which is another large-scale copper mine that is partly underground, is explained by the fact that Escondida subcontracts many activities.<sup>34</sup> It is therefore difficult to compare the job impact of a mining investment based only on the creation of direct employment or based only on the multiplier effect of the project.

Third, it is inherently difficult to assess job impacts in places with limited data collection, including where the informal economy is significant. Employment that mining companies or agricultural investors do not track is often not documented, for example, employment with contractors and subcontractors. This affects the accuracy of the calculation of the indirect impact. Similarly, tracking the spending effect of direct employees is also difficult when they are likely to spend a substantial part of their salary in the informal economy. This influences the accuracy of the induced impact calculations.<sup>35</sup>

Fourth, the causal link between the mining or agricultural activity and the creation of employment may be overestimated, given that other changes occur in the economy at the same time and might also contribute to job creation. Indeed, “[i]n the absence of a counterfactual, it may be difficult to draw conclusions – and it is almost always impossible to find a control that meets reasonable requirements of independence.”<sup>36</sup>

Fifth, given that multipliers only measure short-term economic changes and are static, they do not account for longer-term impacts on a region’s economy. This is an inherent limitation, considering that the best horizon to assess mining in particular is the long-term, especially in areas where the capacity of the potential local supply chain needs to be built up over time. One way of calculating longer-term effects is to include multipliers in dynamic simulation models, although there are few examples of this being done in practice.

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<sup>32</sup> Östensson, 2014, op. cit.

<sup>33</sup> ISG report

<sup>34</sup> Gary McMahon and Felix Remy, *Large Mines and the Community: Socioeconomic and Environmental Effects in Latin America, Canada and Spain* (Ottawa, Canada: International Development Research Centre and The World Bank, 2001), p. 16.

<sup>35</sup> Östensson, 2014, op. cit.

<sup>36</sup> Östensson, 2014, op. cit.

Finally, when comparing multipliers, including induced effects,<sup>37</sup> one needs to consider the geographical scale as well as the level of development of the particular economies studied. The multiplier will be lower at the local level than at the national level both because inputs are often sourced from elsewhere in the country, and employees are purchasing products made elsewhere.<sup>38</sup> In addition, the share of income that is spent locally is often related to income levels and the degree of diversification of the local economy: lower-income individuals tend to spend more of their income on locally-produced goods, which would have the effect of raising the multiplier effect. At the same time, however, local economies in low-income countries tend to offer less of a choice of locally-produced products, which again tends to lower the multiplier effect.

Thus, while multiplier calculations can assist with estimates of the short-to-medium term impact of mining and agricultural investments on job creation, the complexities related to calculating and comparing their respective impact mean that any analysis is likely to be incomplete. The calculations of potential indirect and induced employment from mining and agricultural investments can offer useful estimates, yet should be viewed with these limitations in mind.

### 1.3 Context counts: the many factors that affect job creation

The number of jobs directly and indirectly generated from mining and large-scale agricultural investment depends heavily on a range of factors, further complicating efforts to understand the employment effects of such investment. This section reviews some of the key factors that affect job creation from mining investments, and then examines similar factors relevant for large-scale agricultural investments.

In the mining industry, multiple factors influence the job creation potential of an investment. These include the type of ownership, the size of the mine, the mining life cycle phase, the type of mining operation, and the type of commodity being extracted.

The type of ownership is relevant because state-owned mines often employ more workers than market-driven companies; reasons for this include “a ‘cradle to grave’ corporate responsibility welfare policy,”<sup>39</sup> political patronage, pressure from interest groups, and fear of political upheaval that could result from layoffs. The higher

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<sup>37</sup> A distinction is sometimes made between Type I multipliers, which do not include induced effects, and Type II, which do.

<sup>38</sup> Richard C. Schodde and Jon M. A. Hronsky, “The Role of World-Class Mines in Wealth Creation,” 12 *Society of Economic Geologists* (2006), p. 85.

<sup>39</sup> Economic Commission for Africa. “Minerals and Africa’s Development: the International Study Group Report on Africa’s Mineral Regimes” (November 2011).

employment numbers of state-owned mines has meant that one of the consequences of privatization of state-owned companies in certain regions has been the widespread loss of jobs.

The scale of a mining operation can also make a difference and the effect can be more than proportional. Since there are economies of scale in most industries, a large mining operation can, in principle, sustain more locally-based input-delivering activities than a smaller mining operation would be capable of. A study that compared “world class” mines - defined as mines with a net present value at the decision-to-build-stage of US\$ 250 million in 2004 dollars - with other mines found that the large-scale mines had significantly higher employment multipliers at the regional and national levels. There was no difference, however, at the local level.<sup>40</sup>

In addition, job creation is much higher during the construction phase than during the production stage, because more employees are needed to develop a mine site and build the associated transport infrastructure than to operate a mine. After reaching its peak in the final stages of construction, employment begins to taper off during the production phase. For example, in the case of the Antamina mine, situated in the Peruvian Andes, 50 contracting companies were engaged during the three-year construction phase, which created 9,795 jobs. Since transitioning to the production phase in 2001, however, the level of employment through contractors dropped to 2,107 jobs.<sup>41</sup> In turn, at the Diavik Diamond mine in the Northwest Territories, Canada, employment increased from 297 to 1,114 during the first three-year construction phase. Yet when production started, the employment numbers similarly dropped to 611.<sup>42</sup>

Accompanying the typical downsizing effect from the construction to production phases is a shift in the makeup of employment. In South Australia, for example, the majority of workers during the course of construction tend to be tradespersons<sup>43</sup> and related workers, comprising 68.6 percent of the workforce.<sup>44</sup> During the production stage, this category drops to 21 percent, while the category of skilled labor—professionals, associate professionals, and technicians— increases to 35 percent, up from 8.7 percent in the construction phase.

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<sup>40</sup> Richard C. Schodde and Jon M. A. Hronksy, “The Role of World-Class Mines in Wealth Creation,” 12 *Society of Economic Geologists* (2006), p. 85. This is based on a survey of 22 prior economic studies that cover 51 different mines, industries and locations across a range of scales and time periods.

<sup>41</sup> Evelyn Dietsche, Paul Stevens, David Elliot, and Moortaza Jiwani, *The Challenge of Mineral Wealth: Using Resource Endowments to Foster Sustainable Development* (London: International Council on Mining and Metals, 2007), p. 33.

<sup>42</sup> Diavik Diamond Mines Inc., *2011 Diavik Socio-economic highlights* (London, 2 Feb 2012), p. 17.

<sup>43</sup> This term is British/Australian and corresponds almost, but not completely, to skilled workers.

<sup>44</sup> Michael O’Neil and Paul Huntley, “Mining the Labour Market: The Estimated Demand for Labour in the South Australia Mining Sector 2006 – 2014,” (Adelaide, Australia: The South Australian Centre for Economic Studies, Apr. 2006), p. 7. The study is based on a survey of 19 mining companies in South Australia and on the Western Australia Minerals Institute Workforce Profile.



It should also be noted that most mines go through changes in production capacity during their lifetime. This is because production is generally expanded in stages, and with each expansion there is a temporary employment peak during the construction of the new facilities, as well as higher permanent employment overall once the expanded facilities are in operation

The type of mining operation can also affect its employment impact. Underground mining typically generates higher employment numbers than open-pit mining, relative to production volume and value. This is because underground mining is more labor intensive. In addition, underground operations often require more skilled staff who are paid higher wages and thus have more to spend, which may increase the induced effect.

In any particular context, factors related to the type of commodity may also affect the level of job creation. In a study carried out by the State Government of Utah, which includes the induced effect in multiplier calculations, commodities were determined to have various multiplier effects, with gold and potash having the least impact on the economy, and uranium having the most.<sup>45</sup> Of course, to be accurate, any comparison of the employment effect of mines based on commodities should consider the size of mines, the type of mining operation (underground versus open-pit) and the project phase; those factors are not mineral-specific. Among the mineral-specific features, the most influential factors are the lifespan of the mining project and the mineral grade. Not taking other factors into account, a low-grade and long project (more than ten years, say) will generate more direct, induced and indirect jobs than a high grade, short project. Some commodities tend to have shorter life cycles than others. For example, gold projects are on average shorter by several decades than iron-ore projects, because gold ore bodies tend to be smaller in extension than iron ore deposits and because the cost of the large investments in transport infrastructure that are usually necessary for iron ore projects can only be borne by large, long-lived operations. Gold mines will thus generally bring about fewer indirect jobs, since it takes time to develop deep linkages with the local economy. While the impact of grade is a cross-mineral issue, grade variations differ for different minerals. For instance, the grade in bauxite mining varies relatively less from one mine to another than in copper mining.

When the mine necessitates transport infrastructure, such as Rio Tinto's Simandou project, the job impact and the multiplier effects are of course amplified. For instance, 58% (9,100 Full Time Equivalent) of the job creation associated with the construction of the Simandou project will come from the construction of the railway being built to transport iron ore from the project site. According to Rio Tinto's model, the

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<sup>45</sup> Utah, Governor's Office of Planning & Budget Demographic & Economic Analysis Section, "Multipliers for Utah," Utah State & Local Government Fiscal Impact Model Working Paper, 2001-1. Salt Lake City: Governor's Office of Planning & Budget Demographic and Economic Analysis Section (July 2001), p. 2.

employment multiplier effect is 5.29, which will lead to the creation of 48,100 indirect and induced jobs.<sup>46</sup>

As with mining projects, the number of jobs directly and indirectly generated by investments in large-scale agricultural projects will depend on a number of factors, varying with the context of each project and its operating environment. Types of crops, methods of production, specific project contexts, and links to agro-processing will drastically influence the number of jobs required, and thus created, by a project. This renders generalizations regarding the job creation impact of investment in agricultural projects fairly imprecise.

The type of crop produced is one of the most relevant factors affecting the number of jobs created through agricultural investments.<sup>47</sup> Indeed, the labor intensity linked to different crops can lead to widely divergent employment needs. In 2011, in a study on large-scale land acquisitions, the World Bank examined business plans for large-scale investments, and, using numbers included in the plans, developed estimates of jobs created per 1,000 hectares for a number of common commodities. The variation in the range is notable. As the least labor-intensive crops, grains supported an estimated 10 jobs per 1,000 hectares, and soybeans an estimated 18 jobs per 1,000 hectares. On the higher end, oil palm supported an estimated 350 jobs per 1,000 hectares, and jatropha and rubber both required an estimated 420 jobs per 1,000 hectares.<sup>48</sup>

While there is reason to suspect that these estimates are on the high side (see Box 2), they highlight the range in job creation potential held by different crop types. These different labor outcomes led the World Bank to conclude that “crop choice and organization of production will have far-reaching impacts on the scope for agricultural growth to reduce poverty,” and to counsel that, in areas where land is limited and employment needed, “crops with higher labor intensity ... may need to be actively promoted.”<sup>49</sup>

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<sup>46</sup> Rio Tinto

<sup>47</sup> David Cheong and Marion Jansen, “Employment, Productivity, and Trade in Developing-Country Agriculture,” in David Cheong, Marion Jansen, and Ralf Peters, eds., *Shared Harvests: Agriculture, Trade, and Employment* (International Labour Organization and United Nations Conference on Trade and Development, 2013), available at: [http://unctad.org/en/PublicationsLibrary/ditctncd2013d2\\_en.pdf](http://unctad.org/en/PublicationsLibrary/ditctncd2013d2_en.pdf) (last visited June 26, 2016).

<sup>48</sup> World Bank, *Rising Global Interest in Farmland* (The International Bank for Reconstruction and Development/The World Bank, 2011), pp. 38-39.

<sup>49</sup> World Bank, 2011, op. cit., pp. 38-39. Note, however, that these job creation estimates do not explicitly explain what types of jobs are included: for example, there is no indication of whether the jobs created are permanent or seasonal, or whether they refer to an average number of jobs spread out over the lifecycle of the project, or simply to jobs required in certain phases of production.

## **Box 2: A closer look at job estimate numbers**

The World Bank's estimates of job creation for different crops, found in a table in its 2011 "Rising Global Interest in Farmland" report and discussed above, are based on a review of investment business plans. Yet investors, who generally tout job creation as one of the development benefits of their investment in a project, often have an incentive to overestimate the number of jobs that an investment will create. Indeed, a more recent field-based survey by the World Bank and UNCTAD of 39 agribusiness investments in Sub-Saharan Africa and South East Asia found that the projects created an average of one direct job per twenty hectares. Slightly over half were permanent jobs, while the rest were temporary, casual, or seasonal. Yet at least half of the projects were focused primarily on palm oil, rice, rubber, and sugar, which are some of the most labor-intensive crops, according to the 2011 estimates.<sup>50</sup> Similarly, research conducted by the Oakland Institute has found that the jobs created through agricultural investment schemes are often much fewer than promised: for example, in South Sudan, one former parliamentarian claimed that a company had promised 6,000 jobs; however, at its peak, allegedly only an estimated 600 people were hired, later reduced to about 250 people after cost cutting.<sup>51</sup>

Further, comparing the World Bank's estimates of jobs with numbers found through field data also indicates that the estimates may be slightly inflated. One academic, in reviewing and responding to the World Bank's Rising Global Interest in Farmland report, has argued that the report's estimate for numbers of jobs generated by oil palm investment "is too high," comparing the World Bank's estimates with field data from Indonesia and Malaysia. This discrepancy might be partly explained by further examining both sets of numbers. The World Bank's report provided two estimates for oil palm, ranging from 1 job per 2.86 hectares (in the table referenced above) to 1 job per 3.7 hectares (in a discussion of oil palm in Indonesia). The academic, in turn, cites a report that relies on two studies in Indonesia to estimate 83-85 person days per hectare during the operations phase, which leads to a calculation of roughly one job per four hectares, and a study that estimates one job per 10 hectares in Malaysia.<sup>52</sup> While the two estimates of jobs for palm oil in Indonesia are thus fairly comparable, the Bank's estimate for palm oil jobs generally and the academic's estimate for palm oil jobs in Malaysia differ more significantly. One potential explanation for the differences could be that oil palms are cultivated both on plantations and by smallholder farmers, with the latter using more labor per hectare. This highlights the difficulties of generalized job creation estimates that are not distinguished by country, mode of production, or other relevant factors.

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<sup>50</sup> UNCTAD and World Bank, "The Practice of Responsible Investment Principles in Larger-Scale Agricultural Investments: Implications for Corporate Performance and Impact on Local Communities," Agriculture and Environmental Services Discussion Paper 08 (2014).

<sup>51</sup> David Deng, "The Oakland Institute Country Report: South Sudan / Understanding Land Investment Deals in Africa," (2011), pp. 30-32.

<sup>52</sup> Tania Murray Li, "Centering labor in the land grab debate," 38(2) *The Journal of Peasant Studies*, 281-298 (2011), p. 284 (citing studies by Friends of the Earth and Tunku Mohd Nazim Yakob finding that oil palm requires about one person per four to ten has, respectively).

A separate examination of the labor intensity of various crops reviewed data from studies on plantation and large-scale farming in Africa, focusing primarily on permanent or regular employment in tobacco, fruit and, horticulture—crops not included in the World Bank’s 2011 job estimates. As with those calculations, the findings from this review illustrate the varied job creation potential of different crops, ranging from 0.01 workers/hectare for maize production in Southern Africa to 7.93 permanent workers/hectare for pineapple production in one province in South Africa, as well as up to 23 workers/hectare for cut flowers in Kenya when non-field labor was included.<sup>53</sup> Similarly, the Africa Region of the World Bank, in a report on growth poles in Sierra Leone, examined the job creation potential of selected crops; while many estimates were similar to those found in the 2011 World Bank report, one exception was the claim that greenhouse tomatoes create an estimated 2000+ full-time employees per 1,000 has.<sup>54</sup>

In addition to the distinct labor intensity of different crops, differences in how a crop is grown and harvested can also result in different labor requirements. For example, the World Bank’s 2011 chart provided three different numbers for sugarcane-ethanol production: 150 jobs per 1,000 hectares for sugarcane-ethanol that was irrigated with a mechanized harvest in Mozambique, 153 jobs per 1,000 hectares when rainfed with a partly mechanized harvest in Brazil, and 700 jobs per 1,000 hectares when irrigated and manually harvested in Tanzania. This range illustrates the significance of mechanization as a factor in labor intensity and thus job creation potential: the higher the likelihood of mechanization, the lower the number of potential direct jobs.<sup>55</sup>

Increased mechanization, as well as capital-intensive use of inputs, such as fertilizer, can clearly reduce labor needs and thus employment opportunities, and is more likely to occur on larger and more capital-intensive operations. Thus, agricultural growth based on highly mechanized and conventional, rather than organic,<sup>56</sup> production will be

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<sup>53</sup> Peter Gibbon, “Experiences of Plantation and Large-Scale Farming in 20<sup>th</sup> Century Africa,” DIIS Working Paper 2011:20 (2011) (internal citations omitted).

<sup>54</sup> Africa Region Vice Presidency, World Bank, “Sierra Leone Growth Pole Diagnostic: The Growth Poles Program [First Phase]” (July 2013), p. 41.

<sup>55</sup> The extent to which mechanization is used to produce or harvest crops depends, in turn, on other considerations, including the type of crop, the cost of labor, the cost of machinery, and, occasionally, the planned use for the harvested crop. Of course, methods of production might have other implications for indirect employment. For example, mechanized production that also is highly dependent on inputs could conceivably prove more significant for *indirect* employment potential than less mechanized and less input-intensive farming.

<sup>56</sup> Organic agricultural production methods are often more labor intensive than mechanized conventional methods, although this can depend on crops and other factors, including the labor-intensity of conventional methods in specific regions. For example, while organic agricultural production generally requires more labor than conventional production in Europe, in other places, organic farming has not always resulted in significantly higher labor requirements. “Evaluating the Potential Contribution of Organic Agriculture to Sustainability Goals,” FAO’s technical contribution to IFOAM’s Scientific Conference, 1998; *see also* Kees Jansen, “Labour, Livelihoods and the

unlikely to generate high levels of employment or provide significant poverty-reduction benefits, as the World Bank acknowledges in a review of the experience of “rapid agricultural growth” in the Brazilian *cerrado*.<sup>57</sup> Indeed, increasingly mechanized production in certain areas may end up imitating the historical progression in Europe, whereby labor was pushed off of farms and redirected towards industrialization. Conversely, however, the ILO and UNCTAD have argued that, while large commercial farms producing cash crops through mechanized and input-intensive methods generally have reduced labor intensity in terms of jobs per ha, “given larger output, market-oriented farming tends to increase the absolute level of employment.”<sup>58</sup> Of course, as Smalley points out, the shift towards more capital and less labor “has not occurred uniformly over time and the results are not necessarily straightforward. ... The relative contributions of capital, land and labour thus varies across plantation sectors and systems, as does the overall level of mechanisation and capital investment.”<sup>59</sup>

Aside from types of crops and methods of production, other factors specific to the production context also influence the amount of labor required for agricultural production, and the type of jobs generated by a specific investment. For example, as the ILO and the United Nations Conference on Trade and Development (UNCTAD) explain in a joint report: “Labour demand and the set of required agricultural tasks also are influenced by land characteristics and irrigation. The size of plots determines the feasibility of animal or vehicle tractors (and less use of labour); soil fertility determines whether agricultural workers apply fertilizer; and the availability and quality of water determine if agricultural workers need to draw and carry water from tanks, wells, or rivers.”<sup>60</sup>

While the size of plot relates to the feasibility of mechanization, the size of investments generally is not indicative of job creation potential. One review by the World Bank and

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Quality of Life in Organic Agriculture in Europe,” *Biological Agriculture and Horticulture*, Vol. 17 (2000), pp. 251-54; David W. Crowder and John P. Reganold, “Financial competitiveness of organic agriculture on a global scale,” *Proceedings of the National Academy of Sciences of the United States of America*, vol. 112 no. 24, 7611-7616 (June 2015).

Other factors tied to organic farming can also have labor implications. For example, organic farming methods are more likely to favor crop diversification, thus helping to spread labor requirements throughout the year. Organic farming methods can also provide health benefits to employees by reducing exposure to certain chemicals.

<sup>57</sup> World Bank, 2011, op. cit., p. 17. However, this is also context-specific, as higher labor productivity resulting from mechanization can sometimes lead to higher wages, which in turn can lead to higher induced employment, as well as reduced poverty.

<sup>58</sup> David Cheong, Marion Jansen, and Ralf Peters, eds., *Shared Harvests: Agriculture, Trade, and Employment* (International Labour Organization and United Nations Conference on Trade and Development, 2013), p. 36, available at: [http://unctad.org/en/PublicationsLibrary/ditctncd2013d2\\_en.pdf](http://unctad.org/en/PublicationsLibrary/ditctncd2013d2_en.pdf) (last visited June 26, 2016).

<sup>59</sup> Rebecca Smalley, “Plantations, Contract Farming and Commercial Farming Areas in Africa: A Comparative Review,” Land and Agriculture Commercialisation working paper No. 055 (April 2013), p. 8.

<sup>60</sup> Cheong, Jansen and Peters, 2013, op. cit., p. 37.

UNCTAD of 39 large-scale agribusiness investments in sub-Saharan Africa and South East Asia found that, while job creation was the most common benefit associated with such investments, “[l]arge land allocations do not necessarily create the most jobs per ha.”<sup>61</sup> Similarly, researchers found in a study of 150 Ethiopian land deals that “130 offered fewer than 50 full-time equivalent jobs, and there was no trend towards higher levels of employment with higher capital investment.”<sup>62</sup>

Yet the type of large-scale agricultural investment can be a factor in job creation, and investment in agricultural projects that incorporate some processing may generate more jobs. Although this may not be the case for bulk agricultural commodities,<sup>63</sup> which by their nature are not processed or are minimally processed, coupling other types of products with value-addition or processing activities may help establish greater employment numbers. For example, as researchers found in the Kenyan horticulture industry, the shift towards producing prepared vegetables led to greater labor requirements. The researchers estimated that “prepared vegetable production is between 2.5 and 5 times more labour intensive than unprepared vegetable production. Data from one leading Kenyan exporter suggests that at the packhouse, prepared vegetables require four times as much labour for processing than unprepared.”<sup>64</sup> In addition to the creation of direct jobs, upstream agro-processing of non-bulk agricultural commodities, or even more sophisticated downstream agro-processing, such as manufacturing food items, can generate indirect and induced employment, though the multiplier itself will vary.<sup>65</sup>

As with mining, specific country or regional contexts will also influence the linkages that exist between agriculture and the rest of the economy, as well as the multiplier effect of investments. For example, researchers have estimated the general agricultural multiplier to be slightly higher in Asia than in Africa and Latin America, possibly

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<sup>61</sup> UNCTAD and World Bank, “The Practice of Responsible Investment Principles in Larger-Scale Agricultural Investments: Implications for Corporate Performance and Impact on Local Communities,” Agriculture and Environmental Services Discussion Paper 08 (2014).

<sup>62</sup> Lorenzo Cotula and Sonja Vermeulen, “Contexts and Procedures for Farmland Acquisitions in Africa: What outcomes for local people?” 54(1) *Development* 40-48 (Mar 2011), pp. 45-46 (citing Lorenzo Cotula, Sonja Vermeulen, Rebeca Leonard, and James Keeley, *Land Grab or Development Opportunity? Agricultural investment and international land deals in Africa* (London: International Institute for Environment and Development, 2009)).

<sup>63</sup> World Bank, 2011, op. cit., p. 38.

<sup>64</sup> John Humphrey, Neil McCulloch and Masako Ota, “The Impact of European Market Changes on Employment in the Kenyan Horticulture Sector” 16 *Journal of International Development* 63-80 (2004), p. 74.

<sup>65</sup> For an explanation of upstream (initial processing) and downstream (further manufacturing) agroprocessing, see FAO, “The State of Food and Agriculture: The Agroprocessing Industry and Economic Development” *FAO Agriculture Series No. 30* (1997), p. 223. Aside from backward and forward linkages, there are also “sideway linkages” that arise “from the use of by-products or waste products of the main industrial activity.” P. 236. Though jobs can be created through agroprocessing, the FAO cautions that upstream agroprocessing vertically integrated into a plantation economy can engender “a production system that is often founded on forms of disfranchisement of labourers and small cultivators.” P. 237.

because of the “[h]igher population density and the labor-abundant nature of the Asian economies, which facilitate a larger supply response of the non-tradable sector.”<sup>66</sup> In addition, agriculture and its linkages can have distinct impacts on the rest of the economy depending on a country’s stage of development, which researchers describe as “an evolving relation of agriculture to the rest of the economy, from encouraging growth elsewhere in the economy at low levels of development (still the case in many [Sub-Saharan African] countries), developing into a more mutually beneficial relationship as countries grow, to eventually ending up in a stage where growth outside agriculture drives growth (potentially even at the expense of agriculture).”<sup>67</sup>

Compared to mining, relatively few papers have measured and analyzed the employment impacts of large-scale agricultural investments, particularly in terms of the specific numbers of jobs generated, even though job creation is frequently provided as one of the major benefits engendered by such investments. Yet the studies that have been undertaken regarding job creation linked to agricultural investment have not shown as many jobs, or benefits from those jobs, as one might expect. As the Food and Agriculture Organization of the United Nations (FAO) has noted, “[w]hile a number of studies document the negative impacts of large-scale land acquisition in developing countries, there is much less evidence of its benefits to the host country, especially in the short term and at local level. The main type of benefits appears to be the generation of employment, but there are questions as to the sustainability of the created jobs. In several projects the number of jobs has decreased over time and, in any case, was lower than what was initially announced by the investor.”<sup>68</sup> Indeed, while the jobs generated by investments usually provide important opportunities for those who receive them, and while agriculture in general can provide important poverty reduction impacts, the overall job generation benefits of large-scale agricultural investments are less clear.

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<sup>66</sup> Luc Christiaensen, Lionel Demery and Jesper Kuhl, “The (evolving) role of agriculture in poverty reduction—An empirical perspective” United Nations University working paper No. 2010/35 (April 2010) (“Reviewing the multitude of studies calculating the agricultural multiplier effects Haggblade et al. (2007a, p. 167, our emphasis) conclude that ‘best-guess generalizations (of the agricultural multiplier) probably lie in the range of 1.6 to 1.8 for Asia and 1.3 to 1.5 for Africa and Latin America’. Every dollar in direct income generated in agriculture, triggers another 30 to 80 cents in second round income gains elsewhere in the economy.”)

<sup>67</sup> Christiaensen, Demery and Kuhl, 2010, op. cit., p. 245.

<sup>68</sup> FAO, “Trends and impacts of foreign investment in developing country agriculture,” (November 12, 2012), available at: [http://www.fao.org/fileadmin/templates/est/INTERNATIONAL-TRADE/FDIs/Trends\\_publication\\_12\\_November\\_2012.pdf](http://www.fao.org/fileadmin/templates/est/INTERNATIONAL-TRADE/FDIs/Trends_publication_12_November_2012.pdf) (last visited June 26, 2016).

## 1.4 Incentives and disincentives to exaggerate job creation

A final complication in the quest to comprehend employment effects arising from mining and agricultural investments is the potential for governments, investors, or other stakeholders to exaggerate such effects. This complicates any efforts to glean an understanding of employment impacts through employment estimates, such as the World Bank agriculture study discussed in the section above. Perhaps more importantly, inflated estimates can lead to unrealized expectations that are unmatched by reality, which in turn can fuel disappointment or tensions on the part of stakeholders who expected more.

Both governments and investors have incentives to inflate job estimates. One of the more easily understandable indicators of success in the area of economic policy is job creation.<sup>69</sup> Governments are anxious to show that they have provided citizens and voters with a large number of jobs. Accordingly, when possible, they are inclined to favor investors who promise to create significant employment. Companies are quick to pick up on this, and they are also aware that job opportunities are the one factor that may swing the mood of an otherwise hostile or suspicious local population to acceptance of a mining project. There are therefore considerable incentives for both investors and governments to inflate employment numbers in plans and projections and to establish a common ground built on mutually supportive exaggerations of the number of future jobs. By themselves, these incentives are perhaps sufficient to explain a large portion of the discrepancy between reality and expectation.

One reason why such collusion between governments and companies could be less common than expected at first glance, however, is because hype can have repercussions down the road when people are confronted with the reality. If projects proceed as planned, the companies are likely to still be around to suffer from the resulting damage to their credibility and relationship with local communities. Governments may be less likely to suffer the consequences of exaggerations: they may, for example, find it easier to drown the issue of employment in other issues. Moreover, governments change, and a new government might not be seen as accountable for failing to fulfill promises made by its predecessor.

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<sup>69</sup> For example, employment is commonly included among the objectives of mining policy and legislation. The Mineral and Petroleum Resources Development Act of South Africa, for instance, states as one of the objectives of the Act, to “promote employment and advance the social and economic welfare of all South Africans” (MPRDA, 2002, Article 2). The Mineral Proclamation of Ethiopia uses exactly the same formulation: “promote employment and advance the social and economic welfare of all Ethiopians” (Proclamation 678/2010, Article 4.3).



While the incentives to overstate employment estimates may be offset by the risk to credibility, discrepancies between expectations and reality are also exacerbated by the failure of investors to communicate their intentions clearly and effectively. While companies may consider that they have been clear in their communication efforts, cultural, and linguistic factors may render their efforts useless.<sup>70</sup> Obstacles related to the use of technology may also play a considerable role in failed communications.<sup>71</sup>

In addition, other aspects of mining and agricultural investments also serve to widen the gap between expectations and perceptions of reality. These factors have to do with questions such as: When do the jobs come? What type of jobs will they be? Who will get the jobs? Sections 2 and 3 discuss these and other issues in the context of mining and agricultural investments, respectively.

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<sup>70</sup> Mondoloko's characterization of the problem is enlightening: "The prevailing feeling among the mining communities surveyed was mistrust and, in several cases, open hostility towards the mining companies. This sentiment was fed by several factors foremost of which was the uniform perception among ordinary people that the mining companies were reaping super profits at the expense of the economic and social wellbeing of the community. For their part, the mining companies interviewed seemed perplexed at the lack of appreciation for their CSR interventions and positive impacts on their communities. This mismatch of perceptions is partly fed by the lack of a process for managing expectations through community consultation, on the one hand, and monitoring and reporting services delivery, on the other." Angel Mondoloka, "Job and Wealth Creation Impact of Mining Community Development Programmes in Zambia," report prepared for the ILO (January 2014).

<sup>71</sup> Mondoloka, 2014, *op. cit.* (describing a situation in Zambia where community members were told to apply over the Internet and submit to phone interviews if they were seeking a job with the mining company in question, even though community members pointed out that most of them are either illiterate or semi-literate and that they had neither the Internet skills nor access to enable them to apply online or to field a phone interview).

## Section 2. Mining Employment Numbers: Nuances and complications

As discussed above, the direct, indirect, and induced employment numbers generated by investments in the mining sector need to be carefully analyzed to realistically assess the potential of local job creation *in* and *related to* the sector. Yet it is also important to examine what happens to the economic and social fabric of a mining region when investment, and local job creation, occurs. On the one hand, host communities often reap economic and social benefits due to, for example, higher incomes, as well as increased access to business financing, training, infrastructure, and education. On the other hand, some consequences for the host economy and local communities can be negative. This section explores questions that governments, companies, and civil society should consider when assessing the local job creation potential from mining development, with a focus on some of the typical side effects related to employment impacts that can result from mining investments. Box 3 discusses the issue of whether new jobs in mining constitute a net addition to employment or are at least partly offset by job losses in other sectors.

### **Box 3: Do new mining jobs constitute a net addition of employment?**

Concerns about job transfers linked to increases in mining sector revenues have sometimes centered on the effects of the so-called “Dutch Disease,” a term first coined by the Economist in 1977 to describe the Netherlands’ negative experience in the 1960s when the manufacturing sector withered as natural gas exports grew. The Dutch disease results from the huge influx of foreign capital as a result of natural resource exports, which leads to a currency appreciation that in turn makes both a country’s other exports more expensive and uncompetitive, as well as its domestically produced goods that compete with imports.

As a consequence of the change in relative competitiveness, labor will tend to shift from the non-resource tradable goods (products that are traded internationally) sector to the non-tradable goods sector and to the prospering mining sector. The net impact of this shift will depend on several factors, including relative wages and productivity in traded and non-traded goods sectors.

Yet because the mining sector is typically capital-intensive, job transfer to the mining sector should have negligible effects on the lagging export sector.<sup>72</sup> Job transfer to the non-traded goods sector is often more important.<sup>73</sup>

However, the full effects of the Dutch Disease are only realized if an economy's labor and capital are fully employed before the resource export boom. This is often not the case in resource-rich, low- and middle-income countries, which typically have significant labor surpluses, particularly in the informal sector. In such places, when the mining sector begins to develop and expand, unemployed job seekers could fill any jobs that become vacant in non-mining sectors if their holders move to the mining sector. Accordingly, the increase in the cost of labor is likely to be limited and may not reduce the competitiveness of the traded goods sector significantly, unless mining and other traded goods sectors compete for scarce skilled labor. Moreover, appreciation of the real exchange rate due to the effect of increased liquidity on inflation could still prevent the development of a nascent manufacturing sector if skilled labor is scarce.

## 2.1 When do the jobs come?

Mining projects have a long gestation period. From the time a geologist first arrives in a village to inform the inhabitants about the possibility of a future mine until the mine is actually developing, one or more decades may pass. It is not surprising that during this long period, while the mining company is busy exploring for minerals, designing the mine, raising finance, and weighing its investment decision, some local community members may conclude that the talk about jobs was just talk. It might be the case in particular when companies carrying out exploration inform local communities (because they are obliged to by legislation or as a matter of company policy) on the potential job benefits even though most projects never lead to a mine. Furthermore, those who do believe that the mine will eventually be built may be confused by changing estimates of employment that arise as different technical and infrastructural solutions are analyzed.

As noted above, employment in large mining projects usually varies considerably over the life of the project, particularly during the initial stages. It is common for mining projects to exhibit a peak of employment during construction, when much more labor is needed than during production. Employees, who often may have only a sketchy idea of

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<sup>72</sup> W. Max Corden, "Booming sector and the Dutch disease economics: survey and consolidation," 36(3) *Oxford Economic Papers* 359–380 (1984).

<sup>73</sup> See, e.g., J. Cust, "The Spatial Effects of Resource Extraction: Mining In Indonesia," OxCarre discussion paper (2014) (describing such an effect in the 15-km radius around a mine in Indonesia).

the distinction between the construction and production phases, may expect the levels of employment during the construction phase to remain the same during operations. This is particularly understandable when large projects are in a phase of almost continuous expansion during the first several years. For instance, at the Tenke Fungurume project in Katanga province of the Democratic Republic of Congo, construction of the first phase started in 2006. When production began in 2009, construction of the second phase, which almost doubled the production capacity, had already started. When the second phase was completed at the end of 2012, construction of the third phase, which raised production capacity by 50 per cent, had begun.<sup>74</sup> This example illustrates that over the first several years of a mine's life, more than half of the people on the mine site may be working on construction tasks.

The consequences of the confusion surrounding job numbers during different phases of a mining project are further exacerbated by skills requirements that vary over time. While a large proportion of unskilled labor is needed during the construction phase, there is much less need for such labor once production has started. Since the skilled labor needed to operate the mine generally will have been recruited and, if necessary, trained by the time construction work ends, there is often no room for retraining construction workers.

## 2.2 Mining-related job creation: what jobs and for whom at the local level?

Mining-generated employment has the potential to increase income beyond what could have been earned in alternative livelihoods. For example, in Tanzania in 2014, the average pay for mineworkers was Shs 200,000 to Shs 400,000 per month (US\$ 120-240), a relatively high salary compared to other jobs (for instance for the same year, the minimum wage in "trade, industry and commerce" was Shs 100,000 and for "other domestic workers" it was Shs 40,000).<sup>75</sup>

In Zambia, mine employees generally have much higher wages than other formal sector employees, while employees of contractors working for mines earn at least the formal sector minimum wage, which is higher than what people earn in the informal sector. For example, among four mining companies studied in Zambia, the lowest monthly salary for workers employed by the mining companies themselves was US\$ 619.80 and

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<sup>74</sup> Tenke Fungurume Mining, personal communication

<sup>75</sup> <http://www.africapay.org/tanzania/home/salary/minimum-wages>; In Mark Curtis and Tundu Lissu, "A golden opportunity?: How Tanzania is failing to benefit from Gold Mining," Second Edition (October 2008), available at: <http://www.pambazuka.org/images/articles/407/goldenopp.pdf> (last visited June 26, 2016), it is also said that "The average pay for mineworkers in Tanzania is Shs160,000 to Shs300,000 (US\$128 to US\$240) a month. This is a high salary compared to other jobs, in areas where few other jobs are available. "

the median salary was about US\$ 800; the minimum wage at the same time was US\$ 128.<sup>76</sup> However, the privatization of copper mining in Zambia that took place from 1998 to 2004 meant that when the new owners rehabilitated the mines in order to increase production, which resulted in increased employment, a higher portion of those hired were employed by contractors rather than by the mining companies themselves as had previously been the case. Those employed by contractors tend to have fewer benefits and lower salaries than mining company employees. Some of them are probably former employees of *Zambian Consolidated Copper Mines (ZCCM)*, the state-owned mining company that used to operate the privatized mines, and consequently have experienced a large decline in living standards over the long term. The disappointment experienced by those mine workers has probably contributed to the negative image of the copper mining industry in Zambia that is given in much of the literature.<sup>77</sup>

When mine workers have substantially higher incomes than other local community members, this disparity can lead to social friction over income differences and diminished local cohesion. Careful recruitment policies on the part of mining companies that spread the income more evenly can help reduce the friction. For this reason, at the *Sepon* mine in Laos, for instance, the company has taken care to not recruit more than one person from each household. Recruitment has also been distributed between the two linguistic groups in the area. As a result, income inequality, as measured by the Gini coefficient, has diminished to some extent.<sup>78</sup>

Often, however, income inequality at the local level may remain unchanged or be exacerbated by the persistence of local unemployment as a result of the mismatch between the skills required by the mining company or its sub-contractors and the skills possessed by the local population. As has already been noted, skills requirements change over the life of a project, with low-skill labor needed primarily during the construction phase. Moreover, trends towards increased mechanization and automation

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<sup>76</sup> Chamber of Mines of Zambia and ICMM, "Enhancing mining's contribution to the Zambian economy and society," (April 2014).

<sup>77</sup> For instance, Zarina Geloo explains that now mine workers are "low-skilled casual labourers, who are often paid below the minimum wage and are not entitled to accommodation, health care or education allowances;" Z. Geloo, "Cursed by Copper: Mining Communities in Zambia," OSISA (June 20, 2013), available at: <http://www.osisa.org/openspace/zambia/cursed-copper-zambia> (last visited June 26, 2016); James Ferguson uses the term "abjection" and explains that "abjection can be understood as the process by which mineworkers have been 'thrown aside, expelled or discarded' during the economic liberalisation and privatisation of the Copperbelt, leading to a sense of 'debasement and humiliation.'" J. Ferguson, "Abjection and the aftermath of modernism," in *Expectations of modernity: Myths and meanings of urban life on the Zambian Copperbelt* (Berkeley, CA: University of California, 1999), pp. 234-54.

<sup>78</sup> International Council on Mining and Metals, 2011, op. cit.

mean both that less manual labor is needed and that the remaining jobs increasingly require sophisticated training.<sup>79</sup>

For these reasons, the share of the local population that succeeds in finding employment with the mine is likely to be rather small. For instance, Rio Tinto has observed that in the case of the Simandou project in Guinea, less than 5% of the population in the local and regional area is literate and only about 5% are engaged in formal employment. Therefore, skilled positions will likely benefit experienced Guinean nationals from other regions or Guinean expatriates returning to Guinea if management jobs are available.<sup>80</sup>

In this context, it is important to differentiate between the job creation in the local/proximate economy surrounding the mine and national employment generation. Many projects commit to hiring local workers through preferential employment policies. However, the meaning of the term “local” varies. For instance, at the national level, the term “local” describes a citizen of the country; as such, all citizens – whether they reside in the project area or have migrated to it – are deemed “local.” Within the project area, however, the term is usually interpreted to describe a person originating from and habitually resident in the area in which the project is situated. In this context, recruitment may well be conducted locally, but it may not be a “local” who is recruited.

Local disappointment with employment opportunities is common. Most local communities have no particular reason to judge the overall employment outcomes of a mining project. They instead will be interested in how many job opportunities are

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<sup>79</sup> The paradox is that with increased sophistication of mining techniques and technology and the trend towards frontier mining that is, mining taking place in areas that have not been exploited previously, the better jobs are becoming hard to fill with expatriates. According to a PwC report analyzing recent mining trends, companies are growing increasingly concerned with the “labor crunch” (PwC, “Mine 2011, the game has changed: review of global trends in the mining industry” (2011). In their concern of a skills shortage, some mining firms are claiming that automating certain processes will make a dent in this problem: “The lack of skilled mining professionals is likely to be one of the key drivers in next generation mining... leading mining companies to embrace mine automation to help solve their labor shortages and ramp up output.” (PR Newswire, “Mine Site Automation an Answer to Mining Skill Shortages,” available at: <http://www.bloomberg.com/apps/news?pid=newsarchive&sid=aPYMXCg.EwTo>, August 1, 2011 (last visited January 30, 2013.)) Shortages of skilled mining labor have been reported or forecast in Australia, Canada and the United States in the past several years. See, for instance, “Labour Shortage Threatens to Cripple Australian Mining,” *International Business Times*, October 19, 2011, available at: <http://www.ibtimes.com.au/labor-shortage-threatens-cripple-australian-mining-1287731> (last visited June 26, 2016); “Mining Industry embraces technology as skilled workforce diminishes, according to BDO study,” *BDO International*, March 13, 2013, available at: <http://www.bdointernational.com/News/Pages/Mining-industry-embraces-technology-as-skilled-workforce-diminishes.aspx> (last visited June 26, 2016); Sudbury & Manitoulin, “Sudbury Mining Hiring Requirements Forecasts,” (2012). As a result of the shortage, salaries of expatriate staff have gone up, which has made it more attractive for companies to train local personnel.

<sup>80</sup> Rio Tinto, “Employment and Economic Development,” in *Simandou Social and Environmental Impact Assessments (SEIA)*, Volume II – Simandou Rail, available at: [http://www.riotinto.com/documents/R\\_Ch16\\_EED\\_EN.pdf](http://www.riotinto.com/documents/R_Ch16_EED_EN.pdf) (last visited June 26, 2016).

available to people from their community. It is natural for people living near a future mine site to believe that they will have priority regarding job opportunities. They may understand their position to be one of quasi-contracting parties who are asked to tolerate a certain amount of inconvenience and, in return, will receive job offers. When it becomes clear that only some of the local population – and in some cases, only a very small share – will be employed, this is interpreted as a breach of faith. A further complication is that, as already mentioned, it is not always clear who is considered “local.” In-migration occurring because of the mining project may add to or create ethnic rivalries, particularly if it results in significant changes to the composition of the population. This in turn, further puts into question which group is “local.”<sup>81</sup>

A lack of requisite skills in local communities can also limit the magnitude of indirect employment creation. Furthermore, established mining supplier firms in one part of a country may have a competitive advantage when mining commences in another part of the country, and thus may account for a considerable share of indirect employment. In the Northwestern province of Zambia, for instance, where copper mining is relatively recent, many of the services to mining companies are supplied by enterprises based in the historical mining areas in the Copperbelt province.<sup>82</sup> The fact that the Copperbelt is within easy commuting distance, at least on a weekly basis, means that the employment impact of these companies in Northwestern province is minimal.

In some cases, companies may believe that their procurement needs cannot be met in the host country, due to a lack of skills or capacity. In this case, companies may look to source from neighboring countries. For instance, extractive projects in Mozambique have been known to invest large sums in procurement. However, there are more South African and Zimbabwean companies benefiting from these projects than local companies, because there are few Mozambican companies with the capacity to provide the needed services to the mega-projects.<sup>83</sup> For example, South African firms provided electrical equipment and instrumentation for gas treatment centers, steelwork, and plant vehicles for the construction of the Mozal aluminum smelter in Mozambique.<sup>84</sup>

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<sup>81</sup> For instance, in the town of Tenke, located inside the Tenke Fungurume Mining concession area in Katanga, DRC, 46% of the population defined themselves as Sanga, the dominant local ethnic group, in 2006. Most of the rest of the population came from other parts of Katanga and less than 10% from other provinces or abroad. In 2009, when mining started, the Sanga represented 31% and the share of people from other parts of Katanga had increased correspondingly (George Koppert, A. B. Kasongo, S. K. Manyong, P. N. Kalamu, and L. Day, “Tenke Fungurume Mining SARM (TFM), Socio-Economic Baseline Report,” Tenke Fwaulu Exclusion Zone, Democratic Republic of Congo, *Groupe d’Etude des Populations Forestières Equatoriales*, Paris (2010)).

<sup>82</sup> ICMM, “Partnerships for Development Toolkit,” *Mining in Zambia* (2014).

<sup>83</sup> SymeMarmion & Co, “Extractive Industry and Sustainable Regional Development” (June 2010).

<sup>84</sup> Economic Commission for Africa, “Minerals Cluster Policy Study in Africa: Pilot Studies of South Africa and Mozambique,” (Addis Ababa: Economic Commission for Africa, December 2004), pp. 119 - 120.

The enabling environment can also block local companies from benefitting from companies' procurement strategies. There is often a high cost associated with setting up a formal sector enterprise, and access to finance may be limited. In places with weak or unclear property rights, entrepreneurs can also not use their land titles as collateral to access loans. As a result of these factors, many entrepreneurs operate in the informal economy, which makes transactions with mining companies nearly impossible.

### 2.3 Socio-economic change and net employment impact

Large-scale mining will have a drastic impact on the socio-economic fabric of a mining area. Employment, trade and business opportunities, improved infrastructure, and services around new mining projects often draw people to a mining region, and lead to economic, physical, environmental, and social transformation. Some of these changes will be seen as positive by some local residents, and negative by others. Other impacts, such as disruption of livelihoods, are generally negative and will need to be mitigated. These socio-economic changes have implications for employment and livelihood strategies in mining areas.

#### *In-migration*

According to an International Finance Corporation (IFC) study on project-induced in-migration,<sup>85</sup> the intensity of in-migration impacts depends largely on the assimilative capacity of the area, which is defined as "the rate and nature of project-induced increases in population that an area can absorb without development of significant adverse environmental and social impacts."<sup>86</sup> In-migration can bring benefits to local communities. The population growth brought on by in-migrants generally drives a greater allocation of resources toward the area in the form of infrastructure and public services. The arrival of migrants increases the demand for goods and services, such as accommodation, transportation, and food, thereby providing a boost to local businesses and the local economy. In-migrants may also bring new skills and resources; by working with or employing locals, they could help host communities expand their capacities, skills and knowledge.<sup>87</sup> Migrants who bring or set up businesses may hire

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<sup>85</sup> Project induced in-migration involves the movement of people into an area in anticipation of, or in response to, economic opportunities associated with the development and/or operation of a new project. International Finance Corporation World Bank Group, "Projects and People: a handbook for addressing project-induced in-migration," (September 2009), p. 4.

<sup>86</sup> International Finance Corporation World Bank Group, 2009, op. cit., p. 19.

<sup>87</sup> International Finance Corporation World Bank Group, "Projects and People: a handbook for addressing project-induced in-migration," (September 2009), p. 26.



from the local workforce. Increased technical capacity, greater wealth accumulation, and access to new markets could create a virtuous cycle. Fungurume town in Katanga province of the Democratic Republic of Congo reflects this situation: since mine development started, its population has tripled and its economy has diversified from artisanal mining and smallholder farming to include more commerce. This is due partly to the rehabilitation by the mining company of the road linking Fungurume to Lubumbashi, the provincial capital, cutting the traveling time from two days to four hours. As a consequence, traders from other parts of the province can reach Fungurume, increasing local supplies of consumer goods; at the same time, local farmers now have an outlet for their produce.<sup>88</sup>

Not all aspects of the in-migration related socio-economic changes are positive. Negative impacts include increased competition over jobs and resources; higher local inflation; and strain on infrastructure and on the environment. For instance, Rio Tinto notes that, in the context of its Simandou mine, increased spending by the mine employees and in-migrants might trigger inflation in local prices; it acknowledges that this inflationary pressure will be particularly deleterious for those who are economically vulnerable.<sup>89</sup> These negative side effects of shifts associated with the mining project can raise considerable tensions in the region. They can also negatively affect the project's reputation and its "social license to operate."<sup>90</sup>

### *Displacement and disruption of livelihoods*

When mining companies appropriate inhabited land for their operations, local communities often are displaced and resettled. Legislation in most countries accords priority to mining rights over other land uses, which may leave local communities without legal grounds to refuse resettlement. The implications of resettlement can be wide-ranging and tragic. They may include "loss of physical and non-physical assets, including homes, communities, productive land, income earning assets and sources, subsistence, resources, cultural sites, social structures, networks and ties, cultural identity, and mutual help mechanisms."<sup>91</sup> Resettlement initiatives – and particularly those that are not designed carefully – can severely disrupt livelihoods.<sup>92</sup>

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<sup>88</sup> Olle Ostensson and Alan Roe, "Sustainable Mining How good practices in the mining sector contribute to more and better jobs," OPM, (December 2013).

<sup>89</sup> Rio Tinto, 2016, op. cit.

<sup>90</sup> Rio Tinto, 2016, op. cit.

<sup>91</sup> Theodore E. Downing, "Avoiding New Poverty: Mining-Induced Displacement and Resettlement," (London, UK: International Institute for Environment and Development, Apr. 2002).

<sup>92</sup> One example of a resettlement with negative livelihood consequences comes from the Tete province of Mozambique, where the Benga mine forced the resettlement of a community from the fertile lands along the

For communities that use their lands as a means of financial sustenance, traditional and generational knowledge of the local ecosystems may not be transferable to their new lands and can hinder their livelihoods in agriculture, husbandry, or forestry.<sup>93</sup> Certain groups, including the elderly and women, can be more acutely harmed by mining-induced displacement and resettlement because they are more reliant on their natural environment as a means of survival and financial sustainability.

Although mining projects may provide employment for some of the displaced, this may not be a welcome substitute for those who would have rather kept their homes, land, or traditional livelihoods. In addition, projects may not be able to absorb the numbers of people who have lost resources or work, and companies may not be interested in hiring individuals whose skill levels may not meet the needs of the mining operation. In some cases, individuals who were landless and depended on others' land for cash-generating activities, such as crop production or forestry, may be particularly affected, since they have no property for which they can receive compensation, even though the mining-related displacement may have displaced their livelihoods. Legislation or mining company policies, however, may require that landless individuals also receive compensation.<sup>94</sup>

The type of compensation for displacement affects the long-term impact on those displaced. As the Asian Development Bank asserts, "[p]rojects that resettle people productively on land and in jobs restore income more effectively, after a transition period, than projects which hand out compensation only, without institutional assistance for resettlement."<sup>95</sup> This also accords with international human rights best practices, which note that cash compensation generally is not appropriate for individuals evicted due to development projects, such as large-scale mining; instead, individuals should be provided with land that is comparable to or better than that from which they were displaced.<sup>96</sup> In addition to proper compensation through the provision

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Revuboe River to a remote location not suitable for agriculture use. The new location's poor quality soil and insecure supply of water presented a problematic shift for the resettled community. Coupled with reduced access to employment opportunities, this led to food insecurity and negative impacts on community members' livelihoods (Source: S. Lillywhite, D. Kemp and K. Sturman, *Mining, resettlement and lost livelihoods: Listening to the Voices of Resettled Communities in Mualadzi, Mozambique*. (Melbourne: Oxfam, 2015).

<sup>93</sup> Downing, 2002, op. cit.

<sup>94</sup> Companies are strongly encouraged by international frameworks, such as the IFC Performance Standards (see number 5: IFC, "Performance Standard 5: Land Acquisition and Involuntary Resettlement," (January 1, 2012), available at:

[http://www.ifc.org/wps/wcm/connect/3d82c70049a79073b82cfaa8c6a8312a/PS5\\_English\\_2012.pdf?MOD=AJPERES](http://www.ifc.org/wps/wcm/connect/3d82c70049a79073b82cfaa8c6a8312a/PS5_English_2012.pdf?MOD=AJPERES) (last visited June 26, 2016)), to take into account landless populations in their compensation schemes.

<sup>95</sup> Asian Development Bank, "Handbook on Resettlement: A Guide to Good Practice," (Manila: Asian Development Bank, 1998), p. 61.

<sup>96</sup> Sustainable Development Solutions Network, "Harnessing Natural Resources for Sustainable Development: Challenges and Solutions: Technical Report for the Post-2015 Development Agenda," (September 2013), p. 12.

of land and jobs, assistance for resettlement may include providing vocational training, small business development or microcredit.<sup>97</sup>

### *Artisanal and small-scale mining (ASM)*

ASM is estimated to directly or indirectly employ over 100 million people around the globe and to account for over one-sixth of the world's non-fuel mineral output.<sup>98</sup> As such it can play a vital role in reducing poverty, diversifying the local economy, amassing community capital and increasing local purchasing power and demand for goods and services, particularly in regions that have little infrastructure.<sup>99</sup> On the other hand, ASM is often associated with environmental damage, massive in-migration and associated social issues such as crime, drug use, prostitution and social conflict, and squeezing out of other land uses.

The development and operation of a large-scale mine often restricts access to resources, thereby negatively affecting the livelihoods of people dependent on ASM.<sup>100</sup> Competition between ASM and large-scale mining for the same deposits can lead to significant net losses of jobs. In Tanzania, for example, the ASM sector has provided significant employment since the 1980s, when state monopoly over mines ended.<sup>101</sup> A more recent increase in commercial mining has led ASM workers to complain that they are prevented from conducting their ASM activities.<sup>102</sup> On the other hand, mining companies argue that, although they might not bring more jobs, they bring better ones, while also contributing to government revenue and local development.<sup>103</sup> In some places, ASM and large-scale mining co-exist, often under a system where artisanal miners sell their products to a large operation. Such arrangements are, however, fragile and rarely long-lived.<sup>104</sup>

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<sup>97</sup> Asian Development Bank, 1998, op. cit., p. 62.

<sup>98</sup> Communities and Small-Scale Mining, *Working Together: How Large-Scale Mining Can Engage with Artisanal and Small-Scale Mining*, (Washington: World Bank International Finance Corporation, January 2008), p. 5. In a 2013 report, the World Bank estimates that 13 million people in 30 countries work in micro and small artisanal mining. World Bank, "Artisanal and Small-scale Mining," (November 21, 2013), available at: <http://www.worldbank.org/en/topic/extractiveindustries/brief/artisanal-and-small-scale-mining> (last visited June 26, 2016).

<sup>99</sup> Communities and Small-Scale Mining, 2008, op. cit., p. 5.

<sup>100</sup> S. Siegel and M. Veiga, "The myth of alternative livelihoods: artisanal mining, gold and poverty," 41(3/4) in *Int.J. Environment and Pollution* (2010).

<sup>101</sup> ICMM, "Tanzania: Country Case study, The Challenge of Mineral Wealth: using resource endowments to foster sustainable development," (July 2007).

<sup>102</sup> ICMM, 2007, op. cit.

<sup>103</sup> ICMM, 2007, op. cit.

<sup>104</sup> In one extreme example, AngloGold Ashanti, having suspended its operations in Ghana at the end of 2014, ceded more than half of its concession to the government, which was to use the land, inter alia, for small-scale mining. The

In many cases, small-scale miners who are pushed off a large-scale mining site do not leave the profession but go elsewhere. Declines in the absolute number of small-scale miners in any specific area are usually due to one of the following factors: (a) a price decline, (b) strengthened enforcement of bans on illegal mining, or (c) most importantly, improved access to alternative employment that is more attractive.<sup>105</sup> More recently, for Africa's Great Lakes region, requirements under the United States' Dodd-Frank Wall Street Reform and Consumer Protection Act and similar legislation being introduced in the European Union, might also affect ASM negatively.<sup>106</sup>

### *Depletion and pollution of resources*

Every phase of mining, from exploration to closure, poses potential environmental threats to local livelihoods. The readying of mine sites requires clearing land, and frequently requires displacing surface and groundwater. The extraction and beneficiation of ores and the subsequent disposal of waste use significant amounts of water; these processes also have the potential to contaminate water sources through acid mine drainage, soil erosion and contaminant leaching.<sup>107</sup> Deforestation, land degradation, erosion and loss of soil productivity, disruption of waterways, and depletion of natural resources are examples of the negative environmental spillovers of

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company continued feasibility studies with a view to eventually reopening the mine. However, small-scale miners in the area were not satisfied with the land that was ceded and invaded AngloGold Ashanti's operations. In April 2016, the company filed a request for arbitration with the International Centre for Settlement of Investment Disputes (ICSID) ("AngloGold surrenders 60% of concession to gov't," *GhanaWeb*, March 10, 2016, available at: [www.ghanaweb.com/GhanaHomePage/economy/artikel.php?ID=422219](http://www.ghanaweb.com/GhanaHomePage/economy/artikel.php?ID=422219) (last visited June 26, 2016))

<sup>105</sup> Bannock Consulting, "Vulnerability of Artisanal and Small-scale Mining to Commodity Price Fluctuations," (2005), available at: <http://r4d.dfid.gov.uk/PDF/Outputs/C40PAPER5.pdf> (last visited June 26, 2016) - Note that the paper finds that the correlation between price declines and the numbers involved in ASM is not obvious. While an increase in price is normally associated with an increase in the numbers involved in small-scale mining, a price decline could also lead to an increase in people seeking revenues from ASM as these people would suffer from the downsizing programs of large-scale mines. The paper argues that "since the capital and labour costs of ASM are less, they are arguably better able to survive periods of low commodity prices."

<sup>106</sup> Section 1502 of the Wall Street Reform and Consumer Protection Act (the Dodd Frank Act) requires SEC reporting companies to report their use of "conflict minerals," that is, columbite-tantalite (coltan), cassiterite, gold, wolframite (tungsten) and their derivatives that originate in the Democratic Republic of Congo or an adjoining country. Although the requirement does not mean that companies are forbidden to use conflict minerals, most companies appear to avoid buying any of the minerals from the countries concerned that cannot be certified as not originating in conflict areas. Only a small portion of mine operations, mainly for tin, participate in certification schemes ("Conflict minerals law starts working despite poor industry response," Reuters, quoted in *Creamer's Mining Weekly*, July 1, 2014). Certification schemes seem to be particularly ineffective in the case of gold, possibly because gold is relatively easy to smuggle and dissimulate compared to the other conflict minerals ("Map Shows Gold is Top Conflict Mineral in Eastern Congo," *Creamer's Mining Weekly*, November 21, 2013).

<sup>107</sup> Environmental Law Alliance Worldwide, "Overview of Mining and Its Impacts," in *Guidebook for Evaluating Mining Project EIAs*, available at: <http://www.elaw.org/files/mining-eia-guidebook/Chapter1.pdf>, 2010 (Last visited February 5, 2013.)

mining projects which can disrupt traditional local livelihoods and therefore forms of subsistence and income.<sup>108</sup>

### *Impact on women and gender disparities*

Large-scale mining projects generally offer disproportionately few direct employment opportunities for women, largely due to the need for skills that women often do not have, and the lack of accommodation for family and childcare responsibilities.<sup>109</sup> Some indirect and induced jobs are filled by women, however, such as laundry, catering, and agricultural production.<sup>110</sup> One study examining effects in Sub-Saharan Africa shows, for example, that the opening of a new mine leads to localized structural changes in labor participation for women, with a decline in agricultural self-employment in the area leading to women either shifting to the service sector or leaving the labor market altogether.<sup>111</sup> This impact of a new mine on women's labor was not felt beyond a distance of 50 km. Based on this, the study's authors calculated that, as a result of large-scale mining, more than 90,000 women get service sector jobs and more than 280,000 women leave the labor force in Africa. And structural changes caused by a mine's opening are not necessarily reversible: at the closure of the mine, women's involvement in the service sector shrinks, yet women do not always go back to previous activities like farming.<sup>112</sup>

The lack of better job opportunities for women in mining is especially problematic because women may be particularly affected by the land loss that results from resettlement, land appropriation, or environmental degradation linked to mining projects, and they frequently have few other livelihood alternatives. The limited mining-related job opportunities for women, coupled with the disappearance of productive land or sea, can lead them to undertake risky activities, including illegal and unsafe ASM or prostitution.<sup>113</sup> In rural Mongolia, for instance, men traditionally take care of the herd, while women are involved in non-agricultural work. When men get

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<sup>108</sup> Aragon and Rud found that farmers located near large-scale gold mines in Ghana experienced a relative reduction in productivity of almost 40% between 1997 and 2005, most probably as a result of pollution (Fernando M. Aragón and Juan Pablo Rud, "Polluting Industries and Agricultural Productivity: Evidence from Mining in Ghana," *The Economic Journal* (2015), DOI: 10.1111/eoj.12244).

<sup>109</sup> Economic Commission for Africa, *Minerals and Africa's Development: the International Study Group Report on Africa's Mineral Regimes* (Addis Ababa : Economic Commission for Africa, 2011).

<sup>110</sup> A. Eftimie, K. Heller and J. Strongman, "Mainstreaming Gender into Extractive Industries Projects," *Extractive Industries and Development Series*, No. 9 (Aug 2009).

<sup>111</sup> Andreas Kotsadam and Anja Tolonen, "African Mining, Gender, and Local Employment," *World Bank Policy Research Working Paper No. 7251* (April 27, 2015), p. 11.

<sup>112</sup> Kotsadam and Tolonen, 2015, op. cit.

<sup>113</sup> Heller and Strongman, 2009, op. cit.

hired by the mining industry, women remain with the herd, working harder and with potential personal safety concerns. Sometimes the family sells or rents their herd and move into a more urban center. Women then become homemakers and lose their independence, social networks, and traditional knowledge.<sup>114</sup> This issue is compounded when men have to leave the household to be employed in a remote mine, leaving women and children behind. The most dramatic example may come from South Africa, where, under apartheid, mine workers were recruited in the “homelands” or in neighboring countries and were not allowed to bring their families. While recruitment is now done locally, many miners continue to travel to the mining areas, leaving their families behind, partly due to the shortage of housing at mine sites, with complicated and sometimes negative impacts for the families.<sup>115</sup>

In light of the disaggregated risks and benefits of resource extraction for men and women, there have been calls to mainstream gender into mining operations and to establish programs that economically empower women, both as employees of mining companies and in other economic activities. Such initiatives can be found, for example, in the Democratic Republic of Congo with the project WORTH;<sup>116</sup> in South Africa with Lonmin’s Women in Mining Program;<sup>117</sup> and in Chile with the Programa Mujer, a job initiative started by the copper company Minera Escondida and supported by the Chilean Ministry for Women’s Affairs.<sup>118</sup> In several countries, regular conferences have been organized on “women in mining,” encouraging the sharing of experiences regarding the integration of women in mining.<sup>119</sup>

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<sup>114</sup> I. Cane, A. Schleger, S. Ali, D. Kemp, N. McIntyre, P. McKenna, A. Lechner, B. Dalaibuyan, K. Lahiri-Dutt, and N. Bulovic, “Responsible Mining in Mongolia: Enhancing Positive Engagement,” (Brisbane: Sustainable Minerals Institute, 2015).

<sup>115</sup> For a critical review of the system and its evolution, see X. Simelane and G. Modisha, “From Formal to Informal Migrant Labour System: the impact of the changing nature of the migrant labour system on mining communities in Lesotho and Mozambique,” (2008), pp. 17-18. Apart from the impacts on families when miners are away, there can also be complicated and negative impacts when ex-miners return to their community: for example, challenges for the family in caring for ex-miners who return with common work-related disabilities or illnesses.

<sup>116</sup> Pact, “Women in Artisanal Mining in the Democratic Republic of Congo,” available at: <http://www.pactworld.org/galleries/default-file/Women%20in%20Artisanal%20Mining%20in%20the%20DRC.pdf> (last visited July 11, 2016).

<sup>117</sup> World Bank International Financial Corporation, “The Lonmin-IFC Women in Mining Program,” (Washington: International Finance Corporation), p. 10.

<sup>118</sup> World Bank International Finance Corporation, “Promoting Gender Equality in the Private Sector – Hiring Women in Mining Production Jobs,” (Washington: International Finance Corporation, 2006).

<sup>119</sup> See for instance South Africa: <http://www.intelligencetransfer.co.za/conferences/5th-annual-women-in-mining/>, Peru and Papua New Guinea: <http://web.worldbank.org/WBSITE/EXTERNAL/TOPICS/EXTOGMC/EXTTEXTINDWOM/0,,contentMDK:22600630~menuPK:3411872~pagePK:210058~piPK:210062~theSitePK:3156914,00.html>

## 2.4 Closure of the mine

Mining companies, governments and local communities should craft a post-mine closure strategy well in advance of the end of a mine's operations. Such strategies concern environmental reclamation and after-effects such as economic decline, out-migration that can have potentially serious consequences and pose further challenges to local communities in former mining areas.<sup>120</sup>

Generating alternative employment for workers who lose their jobs due to a mine closure, and for those who lose business as a result of the declining demand as people leave the area, is challenging.<sup>121</sup> Yet governments and companies can design measures to absorb or redirect newly unemployed individuals into other forms of suitable labor. One interesting initiative is Rio Tinto's project closure plan for its Kelian mine in Indonesia (see Box 4).

### **Box 4: Rio Tinto's Kelian mine in Indonesia: planning for post-closure community livelihood**

Although Rio Tinto received international criticism regarding its social and environmental conduct of the Kelian mining project, the company's approach to "sustainable project closure" around the mine has been recognized as an example of good practice. In 1996, four years after production started at Kelian, Rio Tinto established a foundation with the primary objective of supporting long-term community capacity-building. The foundation also sought to be self-sustaining through income-generating activities and donations to ensure it could carry out its work sustainably once the mine ceased operations. The foundation's programs covered 41 villages, including the 28 villages estimated to be the most affected by the eventual mine closure. An example of one of the many programs implemented by the foundation included the provision of training, technical field support and a subsidy to cover the initial costs of land cultivation to approximately 600 mine employees to return to farming after mine closure. In addition, four years before closure, the foundation set up multi-stakeholder working groups and a steering committee to develop the closure plan and ensure that community needs would be met. The closure plan suggested that Self Help Groups, established by community members, be constituted and trained in small business management, with the objective of addressing various socio-economic problems.<sup>122</sup>

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<sup>120</sup> International Finance Corporation World Bank Group, "Projects and People: a handbook for addressing project-induced in-migration," World Bank Working Paper No. 62631 (Sept 2009).

<sup>121</sup> A. Liebenthal, R. Michelitsch and E. Tarazona, "Extractive Industries and Sustainable Development: an evaluation of the World Bank Group Experience" (Washington, D.C.: World Bank, 2005).

<sup>122</sup> Ray Subbasis, "Sustainable project management (and closure): The case of Rio Tinto at Kelian," *ICFAI Journal of Environmental Economics* (2009).

## 2.5 Conclusion: Optimizing the job “impact” of mining investments

Large-scale mining projects usually have certain positive outcomes regarding economic, social, and development opportunities. These benefits can support poverty alleviation in a region through the creation of direct, indirect, and induced job opportunities.

At the same time, the negative consequences of mining on livelihoods must also be considered when assessing a mine’s impact on local job creation. Given these realities, companies and governments must strive to devise appropriate policies and strategies to reinforce the positive impacts of mining on employment creation and mitigate the negative impacts. This is particularly important given community expectations stoked by job creation estimates, and the reliance in certain areas on mining projects to provide jobs. Policies targeting employment creation are discussed in Section 4.



### **Section 3. Numbers do not tell the whole story: the nuances of employment from large-scale agricultural investments**

In considering the employment-driven benefits of large-scale agricultural investment from a sustainable development perspective, policymakers and others should pose many of the same questions as in respect of the mining arena, discussed above. Most significantly, what types of jobs and for whom? Who usually benefits? And what impact on the local communities' overall livelihood strategies? These issues, which can affect sustainable development outcomes, should be incorporated into any assessment of the potential job creation impacts of large agricultural investments.

Any discussion of the impact of employment generated through agricultural investments, however, must be preceded by significant caveats. Most importantly, and the quantity and quality of jobs can be very context specific, and efforts to generalize often mask critical nuances. Whether working conditions on plantations developed through agricultural investments are “good” or “bad” depends on the operations of the specific plantation in question. Whether a formal job on a plantation represents a better or worse livelihood outcome for the employee is both subjective and context-specific—for many smallholder farmers, waged labor is not as “good” a livelihood strategy as working on one’s own land (as explained below), but for others, particularly farmers who are closer to the “subsistence farming” end of the spectrum, a job on a plantation may offer more benefits or even security than independent farming. Additionally, a significant portion of rural dwellers may depend on both small-scale farming and waged labor for their livelihood strategies, seeking seasonal waged positions that supplement their own farming (or other livelihood) efforts. These context-specific and subjective considerations are further complicated by other factors: for example, over which timeframes should outcomes be measured, and from which perspectives should a situation be evaluated?

Despite the difficulties in assessing job quality and impact, it is important for policymakers, investors, and other stakeholders to attempt to consider these different variables. Without an honest assessment of the impact and interplay of different variables affecting employment, any assertion that job creation on its own is a general benefit of large-scale agricultural investments will prove superficial.

### 3.1 What jobs and for whom?

Claims around employment creation from agricultural investments rarely provide details on the types of jobs created, the beneficiaries of those jobs, and the associated working conditions. These are important factors, however, as a well-paid, full-time job is significantly different to a temporary, low-wage position. And there is reason to believe that the quality of jobs created through land investments is often less than optimal. Around the world, the majority of waged agricultural work is frequently casual, hazardous, low-skill, and low-paid.<sup>123</sup> While the specific employment conditions may be shaped by the country context and labor regulations, the management of the farm, or even the type of crop grown,<sup>124</sup> agricultural labor conditions on large-scale plantations or farms tends to look fairly similar across the globe.

#### *Security and duration*

The security and duration of jobs created through agricultural investments can vary widely, from permanent to casual, and year-round to seasonal. Job estimates are often silent as to these factors, as well as to whether the figures refer to an average number of jobs spread out over the lifecycle of the project, or simply to jobs required at certain phases, such as those that are anticipated during or after any establishment periods.<sup>125</sup> Estimates also rarely indicate whether the operations plan to shift to more mechanized and less labor-intensive work as the project continues.<sup>126</sup>

Agricultural work is often seasonal, and research on the proportion of permanent and casual waged labor generated by agricultural investments indicates that casual or

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<sup>123</sup> The International Labour Organization classifies agriculture as one of the most hazardous occupations: <http://www.ilo.org/safework/areasofwork/hazardous-work/lang--en/index.htm>. See also Smalley, 2013, op. cit., p. 4 (“There is widespread evidence of low wages, long hours, poor housing and health risks for plantation workers around the world.”)

<sup>124</sup> Smalley, 2013, op. cit., p. 56.

<sup>125</sup> While some crops can be established quickly (for example, most grains, which are generally annual crops that can be planted and harvested within a year), other crops can take years to establish (for example, oil palm, which may take 3-4 years before beginning to produce). FAO, “Palm Oil,” (1977), available at: <http://www.fao.org/docrep/006/t0309e/t0309e01.htm> (last visited July 11, 2016). For these crops, differences in project cycles can also lead to differences in jobs generated: for example, studies in Indonesia have estimated that, during the establishment period of large oil palm estates, 532-542 person days per hectare are needed, but, during the operational phase, only 83-85 person days per hectare are required. Friends of the Earth, LifeMosaic and Sawit Watch, “The human rights impacts of oil palm plantation expansion in Indonesia,” (February 2008), p. 78 (internal citations omitted).

<sup>126</sup> This points to the need to consider job creation impacts throughout the expected project cycle or length of the concession. For example, “[p]lantations have historically demonstrated a tendency towards progressive mechanisation (with sugarcane being a strong example).” S. Vermeulen and L. Cotula, “Making the Most Of Agricultural Investment: A Survey of Business Models That Provide Opportunities for Smallholders,” IIED/FAO/IFAD/SDC, London/Rome/Bern (2010), p. 24.

seasonal labor comprises a significant proportion of the jobs created.<sup>127</sup> For example, in the World Bank and United Nations Conference on Trade and Development (UNCTAD) review of 39 agribusiness investments discussed in Section I, nearly half of the jobs created were temporary, casual, or seasonal.<sup>128</sup> Investigations of specific projects have also found significant proportions of seasonal jobs. In Mozambique, for example, World Bank researchers have noted that “[l]ocal peoples’ appreciation for job-related benefits may also be reduced if these jobs are only seasonal or if they are taken up by migrants. Seasonality has been an issue in a project in Mozambique where 280 local people (56 of them women) are employed to plant and weed.”<sup>129</sup> Similarly, the Oakland Institute asserts that one of the most prominent biofuels investments in Mozambique, which operates on 5,000 ha, had generated 1,500 jobs, “although many are seasonal.”<sup>130</sup> Substantial reliance on casual labor in agricultural investment schemes accords with commercial agricultural production generally, as well as broader trends towards the casualization and informalization of agricultural labor.<sup>131</sup> Indeed, the natural fluctuations of agricultural production, which requires larger numbers of seasonal workers to support harvesting or other work-intensive periods, render it difficult to avoid relying, at least in part, on some seasonal workers. Yet the creation of a seasonal job that lasts for several months is generally less transformative than the creation of a permanent year-round job, both for the individual employed as well as from a poverty-reduction perspective.

The creation of seasonal or non-permanent jobs is not inherently problematic: to the extent that such jobs offer a flexible means to supplement subsistence farming with wages, for example, they theoretically could be a complementary livelihood strategy for rural dwellers.<sup>132</sup> Yet in practice, seasonal and casual plantation jobs are not always easily reconciled with smallholder production, which may have conflicting labor demands.

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<sup>127</sup> Anna Locke and Giles Henley, “Land,” in Evidence on Demand Topic Guide (February 2014), p. 7. (“One common trend is that investments often provide fewer jobs than initially promised and instead depend heavily on casual labour.”)

<sup>128</sup> Table E.1 (“Employment, Descriptive Statistics”). Of the total formal employment, 19,832 were permanent jobs, while 18,348 were temporary, casual or seasonal jobs. (Note that the sum of these numbers is slightly different from the total formal employment number provided in the table.) UNCTAD and World Bank, “The Practice of Responsible Investment Principles in Larger-Scale Agricultural Investments: Implications for Corporate Performance and Impact on Local Communities,” Agriculture and Environmental Services Discussion Paper no. 08 (2014).

<sup>129</sup> World Bank, 2011, op. cit., p. 69.

<sup>130</sup> Oakland Institute, “Understanding Land Investment Deals in Africa: Country Report: Mozambique,” (2011).

<sup>131</sup> See, e.g., Stephanie Barrientos and Andriennetta Kritzing, “Squaring the Circle: Global Production and the Informalization of Work in South African Fruit Exports,” 16(1) *International Development* 81-92 (2004), p. 83.

<sup>132</sup> This is somewhat debatable. As Smalley notes in a literature review, in the context of changing agrarian landscapes that feature increased plantation work and a decline in peasant farming, “[a]uthors disagree whether the increased dependence on wage work and external food sources increases vulnerability or increases resilience through diversification.” Smalley, 2013, op. cit., p. 38.

For workers seeking full-time employment, rather than supplemental work, however, the provision of seasonal or temporary jobs is clearly sub-optimal. Even when workers are able to string together multiple seasonal or temporary jobs, this approach is almost always less secure and more tenuous than working in a full-time permanent position. Workers who lack permanent contracts may also be subject to worse labor conditions.<sup>133</sup> Additionally, the insecurity of casual or temporary labor means that workers are particularly vulnerable if accidents arise that impair them from continuing to work, and they generally have little support and few safety nets once they have stopped working. In Ghana, for example, casual workers on oil palm plantations have asserted that, “despite having worked for the investor for many years, they were still not offered a permanent contract .... Hence, they are concerned about not being able to maintain their livelihood in case of an accident as well as during their post-retirement periods.”<sup>134</sup> In addition, contract work – work provided through middlemen or labor brokers – is another category of employment that is generally not disaggregated in job estimates tied to agricultural investments, but which is common in farming and leads to especially vulnerable job security.<sup>135</sup>

### *Income, wages and benefits*

In many countries, agricultural jobs are among the lowest paid waged work.<sup>136</sup> Wages from agricultural labor are also generally volatile; as a 2013 joint report by UNCTAD and the International Labour Organization (ILO) notes, “agricultural workers’ wages and earnings are subject to uncertainties in the weather, risks of land degradation or dispossession, fluctuating prices and availability of farm inputs and outputs, and personal and household ill health.”<sup>137</sup>

Researchers have found that at least some farms created through agricultural investments pay low and inadequate wages. For example, a review of 39 projects found that “[s]ome investors were paying inadequate wages and offering unacceptable

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<sup>133</sup> Smalley, 2013, op. cit., p. 31.

<sup>134</sup> Susanne Johanna Vath, “Gaining neighbours or big losers,” LDPI Working Paper No. 24 (2013), p.14.

<sup>135</sup> For example, one study of farmworkers in South Africa’s export fruit industry found that contract workers “have little or no access to the benefits and protections provided by labour legislation.” Barrientos and Kritzing, 2004, op. cit., p. 90. The authors asserted that contract workers are particularly vulnerable and “exposed to an intensified risk of poverty,” even when wages or length of employment were comparable for contract workers as opposed to permanent workers. Female contract workers were particularly vulnerable, and generally paid the lowest wages. P. 91.

<sup>136</sup> UNCTAD and ILO, “Shared Harvests: Agriculture, Trade, and Employment,” (2013), p. 39.

<sup>137</sup> UNCTAD and ILO, 2013, op. cit., p. 41. The same study also noted that “[a]gricultural wages and working conditions are also related to the types of crops grown and tasks performed, a segmentation that has often emerged because of skill and socio-cultural barriers.” P. 10.

working conditions, leading to tension between staff and the investor.”<sup>138</sup> Similarly, the Oakland Institute investigated more than 30 land investments in 7 countries, and concluded that “[t]he majority of land deals ... offer basic wage labor employment, mostly low-paying laborer positions.” Although the Oakland Institute did not specify what those wages were for each deal, or how they compared to other local wages, the two examples they provided were of approximately USD \$2.25/day and USD \$1.65-1.80/day on two different operations in Sierra Leone.<sup>139</sup>

Of course, whether wages are more or less attractive than other existing options remains highly context-specific and individually subjective. In some contexts, plantation wages may be higher than the national minimum wage,<sup>140</sup> higher than the average wage,<sup>141</sup> or higher than those paid in other industries. For example, a 2012 report by the Food and Agriculture Organization of the United Nations (FAO) asserted that, in Cambodia, a review of seven large agricultural projects found that they “generated a large number of jobs and reported wages for unskilled workers far above the minimum wage for Cambodian garment workers.”<sup>142</sup> (This example illustrates a point discussed further below: jobs and wages cannot be considered in a vacuum. As the FAO acknowledged, these same investments in Cambodia also caused displacement and loss of livelihoods.<sup>143</sup>) In addition, wages for farmworkers on foreign-owned plantations sometimes are relatively better than wages for workers on other types of farms, even if they remain below the minimum wage.<sup>144</sup> In such contexts, plantations or

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<sup>138</sup> UNCTAD and World Bank, “The Practice of Responsible Investment Principles in Larger-Scale Agricultural Investments: Implications for Corporate Performance and Impact on Local Communities,” Agriculture and Environmental Services Discussion Paper 08 (2014).

<sup>139</sup> Oakland Institute, “Understanding Land Investment Deals in Africa: The Myth of Job Creation” (Dec. 2011).

<sup>140</sup> For example, in a case study of South African Illovo’s investment in Zambia, Ben Richardson notes that “[t]he company’s average wage of ZK 1.75m (\$350) per month is far higher than the national minimum of ZK 300,000 (Zambia Sugar 2009). While the average wage clearly hides inequality between the different fractions of labour – for example, a male research supervisor is paid three times more than a female weeder – it cannot be denied that a job with the company remains highly prized (Oxfam 2004, 23).” (Ben Richardson, “Big sugar in southern Africa: rural development and the perverted potential of sugar/ethanol exports,” 37(4) *Journal of Peasant Studies* (2009), pp. 917-938.)

<sup>141</sup> World Bank, 2011, op. cit., p. 68 (example of company in Ukraine that employs 5,000 workers “at wages some 50 percent higher than the average”).

<sup>142</sup> FAO, “The State of Food and Agriculture: Investing in Agriculture for a Better Future,” (2012), box 19, p. 68, available at: <http://www.fao.org/docrep/017/i3028e/i3028e.pdf> (last visited July 13, 2016).

<sup>143</sup> FAO, 2012, op. cit., box 19, p. 68.

<sup>144</sup> Smalley, 2013, op. cit., pp. 58-59 (“[A]lthough the record of plantation firms as employers has been criticised, the wages and conditions for workers can be better or perhaps *less bad* on foreign-owned plantations than on large farms and smallholdings. There is evidence to suggest a spectrum in wages, with the worst pay on non-participating small farms at one end, improving on medium-scale and large-scale mixed and contract farms, somewhat better pay on modern horticulture contract farms and estates, and ending with the highest wages on specialised, foreign-owned plantations (Mackintosh 1989; Glover & Kusterer 1990; Foeken & Tellegren 1994; Porter & Phillips-Howard 1997; Dolan 2004; English et al. 2004; Cramer et al. 2008; Neven et al. 2009; Oya 2010; Richardson 2010). This is relative, of course — even the best wages might be below the national minimum wage (Cramer et al. 2008).”)

farms developed through large-scale investments might offer relatively better employment opportunities and wages for poor landless laborers (workers without access to ownership of land) than would exist in the absence of the investments. And to the extent that few waged opportunities previously existed in a rural area, the jobs created through an agricultural investment may provide a useful new source of monetary income.

While waged opportunities created through agricultural investments may represent better options for landless laborers, they are generally less appealing for smallholder farmers. As some researchers have noted, the World Bank's calculations of agricultural wages versus smallholder earnings for various crops show that smallholders can earn significantly more than waged workers producing the same crop.<sup>145</sup> This suggests that the jobs created through agricultural investments do not offer significant wages from the perspective of many smallholders, who could earn more by continuing to farm their own holdings. The relatively paltry wages also suggest that in many places, as the World Bank notes, "improving the productivity of smallholder farmers will have a much larger impact on poverty reduction than promotion of large-scale land acquisition,"<sup>146</sup> discussed further below.

### *Type of labor and transferable skills*

Most agricultural labor tends to be "low-skilled." While this means that investments in agriculture might create jobs for low-skilled rural dwellers with few other opportunities,<sup>147</sup> such investments generally fail to provide many skilled employment opportunities.<sup>148</sup> The relative dearth of skilled jobs generated through agricultural investments also means that the jobs created will not result in many transferable skills for workers,<sup>149</sup> though to the extent that workers subsequently can acquire land, their experience working on agricultural concessions may help in establishing farms.<sup>150</sup>

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<sup>145</sup> Li, 2011, op. cit., p. 285 (citing World Bank, 2011, op. cit. report); Oakland Institute, *Understanding Land Investment Deals in Africa: The Myth of Job Creation*, 2011, op. cit. p. 2 (citing World Bank, 2011, op. cit. report).

<sup>146</sup> World Bank, 2011, op. cit., p. 5. Based on this, Li argues that governments or donors concerned about poverty reduction should go further, undertaking land reform to break up large-scale farms, and, where possible, distributing land while providing support to smallholders. Li, 2011, op. cit., p. 285.

<sup>147</sup> The provision of low-skilled jobs is not insignificant, given David Cheong, Marion Jansen and Ralf Peters' assertion that, in some developing countries, the majority of workers in rural areas "are low skilled and have few opportunities for employment except in agriculture." Cheong, Jansen and Peters, 2013, op. cit., p. 19.

<sup>148</sup> Cotula and Vermeulen, 2011, op. cit., p. 47.

<sup>149</sup> Indeed, agricultural workers generally confront obstacles in trying to transfer their skills outside the agricultural industry. Cheong and Jansen, 2013, op. cit., p. 42.

<sup>150</sup> Smalley, 2013, op. cit., p. 36 "The theory that plantations will benefit local agriculture through technology transfer and other spillover effects is commonly argued by plantation advocates, and evidence suggests that this has occurred

### 3.2 Who usually benefits?

As with mining investments, the jobs created through investments in land for agriculture may not always benefit workers from the local community.<sup>151</sup> This is particularly true for the relatively limited number of higher skilled jobs that are created, which are often offered to foreigners or non-local workers. For example, one large South African investment in Zambia engendered allegations by Zambians – including university graduates – that they had been passed over for jobs that were given to South African expatriates.<sup>152</sup> Another example from an Egyptian investment in South Sudan found that the highly mechanized production created few jobs, and that “[m]ost of the permanent staff are migrant workers from Southern Africa,” although the CEO has asserted that the number of local workers employed has increased as more skilled workers return to South Sudan.<sup>153</sup> These examples align with a 2012 FAO report, which noted that operations established by foreign investment in agriculture often employ expatriates or non-locals for management positions.<sup>154</sup> Although investors sometimes claim that higher skilled jobs are not suitable for local residents due to mismatched skills, training programs can help reduce the skills gap, as discussed further in Section 4.

Depending on the context, even significant numbers of low-skilled jobs might be taken by domestic or foreign migrants. Indeed, migrant labor in agricultural production is common in most countries; in many cases, migrant workers are willing to work for less pay or under more exploitative conditions. For example, one of the largest rice concessions in Liberia, situated on the border of Sierra Leone and Guinea, created 400 fulltime unskilled jobs, but there were “concern[s] about hiring foreigners who [were] willing to work for lower wages.”<sup>155</sup> Reliance on migrant labor can upset local communities, and also engenders particular concerns from the perspective of migrant

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in many cases. If they can acquire land, former workers might attempt to establish independent operations using their plantation crop experience, as reported in Indonesia with oil-palm and colonial Côte d’Ivoire.” (internal citations omitted). Conversely, “But in other cases farmwork offers little labour mobility and the workers are unable to accumulate enough savings or skills to get off the farm ....” p. 44.

<sup>151</sup> The High Level Panel of Experts on Food Security and Nutrition, “Land tenure and international investments in agriculture,” (2011), p. 34 (“Employment opportunities are often used to justify taking land, water and other resources from local people. Yet, the promise is often empty, and even when these jobs do eventuate they are often taken by people from outside the area.”)

<sup>152</sup> Richardson, 2009, op. cit. p. 934.

<sup>153</sup> Deng, 2011, op. cit. p. 40.

<sup>154</sup> FAO, “Trends and impacts of foreign investment in developing country agriculture,” 2012, op. cit. pp. 181 and 336.

<sup>155</sup> World Bank, 2011, op. cit., Table A2.2.



workers from other countries, who may suffer some of the worst working conditions yet may be afraid to seek help from local authorities if they are undocumented.<sup>156</sup>

Just as with in-migration encouraged by mining investments, in-migration generated by large-scale agricultural investments can have both positive and negative effects. Potential positive impacts include greater demand for local goods and services, with migrant workers purchasing food or other goods from local producers and in local markets.<sup>157</sup>

On the flip side, in rural contexts with high unemployment, the arrival of migrant workers competing for jobs—even poorly paid and insecure ones—can generate tension or conflict with local communities.<sup>158</sup> For example, in Sulawesi and Kalimantan, Indonesia, “‘failed’ transmigrants and their offspring make up the bulk of the ‘locally recruited’ labor force on oil palm plantations, where they compete with the ‘local’ population, also desperate for work as they are progressively squeezed off the land. The potential for conflict between locals and transmigrants over both land and jobs is clearly very high ....”<sup>159</sup> In addition, the competition from migrant workers can depress wages or affect the establishment or effectiveness of trade unions.<sup>160</sup> To the extent that an investment attracts a significant number of migrants, this can also lead to potentially negative social impacts,<sup>161</sup> as seen in the mining sector.

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<sup>156</sup> Tania Murray Li describes another disturbing problem, whereby companies recruit migrant workers who must work for a set period of time if they want their passage home paid. Companies keep workers’ identity cards, which means that workers are unable to leave, or may face harassment from authorities if they do. (Li, 2011, op. cit., p. 286). Indeed, both forced labor and child labor have been found on plantations in some places, such as for palm oil production in Malaysia and Indonesia. Verite, “Palm Oil,” available at: <http://www.verite.org/Commodities/PalmOil> (last visited July 13, 2016); see also Syed Zain Al-Mahmood, “Palm-Oil Migrant Workers Tell of Abuses on Malaysian Plantations,” *The Wall Street Journal*, July 26, 2015; E. Benjamin Skinner, “Indonesia’s Palm Oil Industry Rife with Human-Rights Abuses,” *Bloomberg Businessweek*, July 20, 2013.

<sup>157</sup> See Smalley, 2013, op. cit., pp. 37 and 58. High levels of remittances may temper this effect, however, if migrant workers send significant portions of their earnings back to their families rather than spending those wages locally.

<sup>158</sup> See, e.g., World Bank, 2011, op. cit., p. 69 (“Investors bringing in migrants from elsewhere was a frequently cited social issue particularly in Liberia, Indonesia, and Ukraine. While in-migration should not be a problem as long as land rights are compensated independently, in many instances jobs were supposed to partly compensate for loss of access to local resources. The fact that these jobs failed to materialize or were taken by outsiders led to conflict and accusations of cheating.”)

<sup>159</sup> Li, 2011, op. cit., p. 288. This potential for conflict may be exacerbated by the history of Central Kalimantan, which has witnessed waves of ethnic violence in the 1990s and early 2000s between indigenous and local groups, on the one hand, and domestic migrants, on the other. Angel Rabasa and Peter Chalk, *Indonesia’s Transformation and the Stability of Southeast Asia* (Rand Corporation, 2001), p. 45.

<sup>160</sup> Smalley, 2013, op. cit., p. 58.

<sup>161</sup> Smalley, 2013, op. cit., p. 37 (“[M]igrant recruitment is associated with a growth in local prostitution, money leaving the area as remittances and heightened vulnerability of workers to exploitation (Epale 1985; Nyanda 1989; Loewenson 1992; Richardson 2010; Julia & White 2012). Furthermore, if migrants stay in the area there can be tension and competition over land and jobs (Friends of the Earth et al. 2008; Li 2011).”



Even when local workers are offered the low-skilled positions created through investments, the benefits of jobs are not always distributed equally throughout the community. Unsurprisingly, stronger workers, or those with better skills, are more likely to be favored. Some researchers also have noted that workers with a better education are more likely to be hired for even low-skilled jobs, and thus to benefit from the job creation that might arise from agricultural investments.<sup>162</sup>

### *Impact on women and gender disparities*

In many low- and middle-income countries, women play significant roles in agricultural production, giving rise to what has been described as the “feminization” of agriculture.<sup>163</sup> Women’s agricultural work includes both independent food production and waged agricultural labor. While it is clear that women may be affected differently by large-scale agricultural investments than men, whether women will benefit from employment opportunities generated by such investments is quite context specific.

The distinct employment impact of such investments on women is linked in part to their roles in respect of agriculture, livelihoods, and household responsibilities before an investment occurs. As researchers have argued, “[t]he gendered effect of plantation agriculture on labor and employment will depend not only on the actual practices used to hire labor but also on the prevailing gender division of labor prior to the beginning of the land deal.”<sup>164</sup> To the extent that an agricultural investment creates jobs, and the positions are filled by local workers—which, as noted above, is not always the case—whether and how women benefit thus may be influenced by preexisting social norms and practices around labor. For example, if formal-sector jobs are presumed to be for men, women simply may not be offered or may not accept newly available jobs.<sup>165</sup> Similarly, when women’s traditional roles require them to prioritize reproductive responsibilities or household tasks, they may confront obstacles in combining such duties with paid labor opportunities, and thus may not benefit from the generation of

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<sup>162</sup> See e.g. Vath, 2013, op. cit.; World Bank, 2011, op. cit., p. 69.

<sup>163</sup> See, e.g., Olivier De Schutter, “The agrarian transition and the ‘feminization’ of agriculture,” International Conference, Yale University, September 14-15, 2013, available at: [https://www.tni.org/files/download/37\\_deschutter\\_2013.pdf](https://www.tni.org/files/download/37_deschutter_2013.pdf) (last accessed July 13, 2016) (discussing the meanings attributed to “feminization of agriculture,” as well as role of women as food producers and farmworkers).

<sup>164</sup> Julia Behrman, Ruth Meinzen-Dick and Agnes Quisumbing, “The Gender Implications of Large-Scale Land Deals,” International Food Policy Research Institute Discussion Paper 01056 (January 2011), p. 10.

<sup>165</sup> Behrman et al. provide an example from Duvane’s research in Mozambique, which found that men benefited from job creation arising from land deals, as women did not work in the formal sector. Behrman, Meinzen-Dick and Quisumbing, op. cit., p. 10.

employment through investment.<sup>166</sup> These situations may also shift responsibility for household food production away from women, potentially disrupting their established roles and relative status within the household.

In addition, when women do benefit from job opportunities arising from agricultural investments, they may be affected differently from men, due to the gendered ways in which some commercial farms employ women and men, both with respect to the types of contracts and the types of tasks for which they may be considered eligible. In some contexts, men working on commercial farms are more likely to receive permanent jobs and contracts, while women are more frequently considered non-permanent workers<sup>167</sup> or brought in as supplemental seasonal or temporary labor on an as-needed basis. This renders women's job security more tenuous, although in some cases such an arrangement may be mutually beneficial, enabling women to earn supplemental wages while fulfilling other duties.<sup>168</sup> Even when women are provided permanent contracts, however, they may be paid lower wages than men, including non-permanent male workers.<sup>169</sup> In respect of differentiated tasks, commercial farms sometimes favor women for certain types of work. The effect of "gendered" roles may have both positive and negative impacts, perhaps encouraging increased employment of women, but limiting such employment to work that is more hazardous or less compensated.<sup>170</sup>

Whether an increase in employment of women due to agricultural investments is generally empowering has been debated. The differences in views might partly be due to framing and perspectives on what constitutes empowerment. For example, research by a coalition of five workers' organizations, which interviewed 970 workers about

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<sup>166</sup> See e.g. Stephanie Barrientos, Catherine Dolan and Anne Tallontire, "Gendered Value Chain Approach to Codes of Conduct in African Horticulture," 31(9) *World Development* 1511-1526 (2003), p. 1523.

<sup>167</sup> See, e.g., Human Rights Watch, "Ripe with Abuse," (2011), fn. 17. However, this may be changing in some places. See, e.g., B.I. Conradie, "What Do We Mean When We Say Casualisation of Farm Work is Rising? Evidence From Fruit Farms in the Western Cape," 46(2) *Agrekon* (June 2007), p. 192.

<sup>168</sup> See e.g., Behrman, Meinzen-Dick and Quisumbing, op. cit., p. 10. ("This type of plantation labor is often low skilled, temporary, and seasonal, which is reported to be a mixed blessing for women. On the one hand, it allows women to balance productive and reproductive responsibilities; on the other hand, it comes with frequent uncertainty about income generation.") (internal citations omitted).

<sup>169</sup> See, e.g., Barrientos and Kritzinger, 2004, op. cit., p. 89 (finding "a clear gender differentiation" between wages paid to male and female farmworkers. But see Miet Maertens and Johan Swinnen, "Are African high-value horticulture supply chains bearers of gender inequality?," Paper presented at the FAO-IFAD-ILO Workshop on Gaps, trends and

current research in gender dimensions of agricultural and rural employment: differentiated pathways out of poverty Rome, 31 March - 2 April 2009, available at: <http://www.fao.org/uploads/media/Gender%20issues.pdf> (last visited July 13, 2016) (two case studies of high-value horticulture production in Kenya found gender bias in provision of permanent versus temporary jobs, but no gender bias in wages for temporary workers generally).

<sup>170</sup> Behrman, Meinzen-Dick and Quisumbing, op. cit., p. 10. In addition, as noted by the High Level Panel of Experts on Food Security and Nutrition, "women sometimes suffer greater exploitation than men in wage labour, and sexual exploitation in return for employment opportunities is not unknown (Longley 2011)." High Level Panel of Experts on Food Security and Nutrition, 2011, op. cit., p. 35.

horticulture farms in Kenya, Zambia, Tanzania, and Uganda, concluded that horticulture employment did not lead to economic empowerment for women, but rather “female working poverty.”<sup>171</sup> Conversely, other researchers have argued, based on surveys in Senegal, that “the growth in high-value agricultural production and the emergence and spread of modern supply chains across developing countries is associated with direct beneficial effects for rural women and reduced gender inequalities in rural areas.”<sup>172</sup> As the authors acknowledge, however, this conclusion “contradicts much of the literature which claims modern supply chains entail detrimental gender effects.”<sup>173</sup>

Aside from questions of waged labor, large-scale agricultural investments can have particular impacts on women’s livelihoods. Indeed, investments that impede access to productive resources can be particularly problematic for women whose traditional responsibilities encompass household tasks or independent food production that rely on such resources. For example, in the World Bank’s examination of 19 large-scale agricultural investment projects, it concluded that

“[m]any of the projects studied had strong negative gender effects, either by directly affecting women’s land-based livelihoods or, where common property resources were involved, by increasing the time required of women to gather water or firewood and take care of household food security. In many cases, it was presumed that land rights were in the name of men only, and consultations were limited to males in the community, leaving women without a voice. Bargaining power within the household was affected in unpredictable ways.”<sup>174</sup>

Any specific investment may have mixed impacts for local women, providing some benefits while simultaneously producing certain harms. For example, a case study of the large-scale Bechera Agricultural Development Project in Ethiopia found that the project provided a new source of cash income for local women, who were hired for the majority of seasonal jobs—including some supervisory positions—but that local women also suffered “substantial losses in relation to livelihoods,” particularly by restricting access to common lands used for grazing livestock, which also affected their ability to earn cash income through selling livestock products. In addition, the reduction of access

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<sup>171</sup> Women Working Worldwide, “Promoting Women Workers’ Rights in African Horticulture: Overview of research into conditions on horticulture farms in Kenya, Zambia, Tanzania and Uganda, available at: [http://www.women-ww.org/documents/www\\_research\\_overview\\_final.pdf](http://www.women-ww.org/documents/www_research_overview_final.pdf) (last visited July 13, 2016), p. 14.

<sup>172</sup> Maertens and Swinnen, 2009, op. cit. p. 14.

<sup>173</sup> Maertens and Swinnen, 2009, op. cit.

<sup>174</sup> World Bank, 2011, op. cit., pp. 69-70.

to such lands affected women's ability to fetch housing materials and water, which added significantly to their labor burdens.<sup>175</sup>

In short, the gendered impact of increased job opportunities and the gendered impact on livelihood strategies due to large-scale agricultural investments depend on context. This is one area in which investments in mining and investments in agriculture may have distinctly different potential impacts, as women are more frequently employed in agricultural jobs than in mining ones. Yet the opportunities may still have distinct implications for women. While such positions hold the potential to augment women's access to waged employment in rural areas<sup>176</sup> or help distribute resources more equitably,<sup>177</sup> these opportunities may be shaped by a range of social and cultural factors. To the extent that governments are concerned about the quality and impact of jobs created, particular attention should be paid to the potential gender implications of any proposed investment.<sup>178</sup>

### 3.3 What impact on local communities' overall livelihood strategies?

Focusing on job creation in the abstract, without simultaneously considering the impact of the investment on the livelihood strategies that existed before such investments occurred, provides a false picture of how beneficial such job creation is. Rather than viewing "job creation" as a positive benefit of investment and "displacement from land" or "loss of livelihood," for example, as a negative outcome of investment, a more robust assessment also would consider whether the waged job creation itself arises at the cost of destroying non-waged labor opportunities. In other words, in some cases the "job creation" generated by agricultural investments might not necessarily be a positive benefit at all, as the net number of livelihoods supported by the investment might be diminished rather than augmented.<sup>179</sup> In these cases, displacement from land can

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<sup>175</sup> Elizabeth Daley and Sabine Pallas, "Women and Land Deals in Africa and Asia: Weighing the Implications and Changing the Game," 20(1) *Feminist Economics* pp. 178-201 (2013), available at: [https://s3.amazonaws.com/landesa\\_production/resource/1940/Daley\\_Women-and-land-deals-in-Africa-Asia\\_2013.pdf?AWSAccessKeyId=AKIAICR3ICC22CMP7DPA&Expires=1468454941&Signature=T9zbZZFFhnhZN6js0qBRE%2BA8tpc%3D](https://s3.amazonaws.com/landesa_production/resource/1940/Daley_Women-and-land-deals-in-Africa-Asia_2013.pdf?AWSAccessKeyId=AKIAICR3ICC22CMP7DPA&Expires=1468454941&Signature=T9zbZZFFhnhZN6js0qBRE%2BA8tpc%3D) (last visited July 13, 2016), p. 8-9.

<sup>176</sup> See e.g., High Panel Level of Experts on Food Security and Nutrition, 2011, op. cit., p. 35. ("improved access to wage employment, provided by plantations, will increase women's ability to earn and control their own incomes. Paid agricultural work can also be a way for women to work outside their domestic setting and interact with other women."), though also acknowledges problems women may confront on farms.

<sup>177</sup> Behrman, Meinzen-Dick and Quisumbing, op. cit., p. 21.

<sup>178</sup> See e.g. High Panel Level of Experts on Food Security and Nutrition, 2011, op. cit., p. 29 ("Employment provision should include hiring of local women as well as men, including the training of women to enable them attain higher wages in supervisory roles.")

<sup>179</sup> While this section focuses primarily on the need to examine "net livelihood impact" to determine whether the jobs created equal the livelihoods lost due to an investment, this more holistic way of evaluating the job creation claims

frequently serve as a proxy for disruptions of previous livelihood strategies, given the importance of land and productive resources for many rural dwellers' livelihoods.

Unfortunately, little robust research to date has focused on holistically assessing the change in labor and livelihood from large land-based investments, or quantifying the loss of smallholder livelihood options and gain of formal waged jobs due to a specific agricultural investment.<sup>180</sup> Understanding the longer-term labor impact of such investments is particularly difficult,<sup>181</sup> as direct jobs may increase or decrease as operations are established, while indirect and induced employment creation will help shape, and in turn will be shaped by, an increasingly monetized local economy. However, qualitative assessments, anecdotal evidence, and extrapolation from certain data highlight the real possibility, in certain cases, of net livelihood losses—at least in the short-term—when agricultural investments establish large-scale commercial operations on areas of land that were previously used for smallholder agricultural production or other livelihood purposes.<sup>182</sup>

For example, even when operations on large land concessions promise significant numbers of jobs, simply comparing those numbers with the number of people estimated to be affected by the same project may show that more livelihoods might be negatively impacted than positively influenced. In the case of the Addax investment in Sierra Leone, the company initially asserted that it would create over 2,000 jobs,<sup>183</sup> a

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linked to agricultural investments ignores other intangible characteristics that distinguish “between working on one’s own farm and working on another, and any inherent virtues of peasant life.” Smalley, 2013, op. cit., p. 15. In addition, this more robust way of calculating the potential employment impacts still does not provide sufficient information for determining whether an investment is “responsible” or “sustainable,” as there are many other factors that host governments should consider. Thus, even in a situation where the net livelihoods are positive—when the direct, indirect, and induced jobs created are greater than the livelihoods destroyed or diminished—there may be many other reasons why the particular investment would not be useful from a sustainable development perspective, or why greater safeguards would be required.

<sup>180</sup> For an excellent explanation of the current research gaps and lack of empirical evidence despite the “literature rush” regarding the “land rush,” see C. Oya, “The land rush and classic agrarian questions of capital and labour: a systematic scoping review of the socioeconomic impact of land grabs in Africa” 34(9) *Third World Quarterly* 1532-1557 (2013).

<sup>181</sup> Oya, 2013, op. cit., p. 1540 (noting that “time matters, as negative outcomes may be more common in the initial stages, whereas positive outcomes, like employment creation and spill-over effects from new production and infrastructure may only materialise after some time.”)

<sup>182</sup> As Peter Messerli and colleagues have shown, it is not uncommon for large-scale investments to occur on land that could be categorized as densely populated cropland. Peter Messerli, Markus Giger, Michael B. Dwyer, Thomas Breu, and Sandra Eckert, “The geography of large-scale land acquisitions: Analysing socio-ecological patterns of target contexts in the global South,” 53 *Applied Geography* 449-459 (2014). And, of course, the former use of allocated land can affect whether displacement occurs. See, e.g., Smalley, 2013, op. cit., p. 58. However, even concessions on previously alienated land may confront lingering concerns about displacement by the previous concessionaire, or, if the land had not been claimed for a long period of time, affect people who began relying on it in the meantime.

<sup>183</sup> Press Release, “Addax Bioenergy Signs Loan Agreement for €258 Million Renewable Energy Project in Sierra Leone,” *Business Wire*, June 17, 2011, available at:

fairly significant number that actually increased after operations began, with estimates of approximately 3,600 people employed in the high season as of 2015.<sup>184</sup> However, the same company's Environmental, Social and Health Impact Assessment (ESHIA) estimated that 13,617 people would be subjected to "economic displacement."<sup>185</sup> The company has implemented compensation processes, including a farmer development program, designed to "adequately deal with impacts related to food and livelihood security,"<sup>186</sup> although the effectiveness of such programs has been contested.<sup>187</sup> Of course, these numbers are not necessarily comparable, as each employee could support multiple other people. (This project also highlights the fragility of relying on employment generated by risky agricultural projects, as operations were "downscaled" less than five years after securing project financing, leaving those jobs in jeopardy.)<sup>188</sup>

Along similar lines, efforts to compare the number of jobs promised with the size of a concession, or with the number of individuals living on a concession area (even without investors' estimates of potentially affected people, as found in the above ESHIA), also indicate that the job numbers promised may be lower than the number of people whose livelihood options may be affected. This has led some researchers and advocates to warn that touted potential job creation benefits are not significant compared to the

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<http://www.businesswire.com/news/home/20110617005346/en/Addax-Bioenergy-Signs-Loan-Agreement-%E2%82%AC258-Million> (last visited July 13, 2016).

<sup>184</sup> Press Release, "Update on Addax Bioenergy operation in Sierra Leone," June 25, 2015, available at: [http://www.addaxbioenergy.com/data/news/Update\\_on\\_Addax\\_Bioenergy\\_operation\\_in\\_Sierra\\_Leone\\_24\\_June\\_2015.pdf](http://www.addaxbioenergy.com/data/news/Update_on_Addax_Bioenergy_operation_in_Sierra_Leone_24_June_2015.pdf) (last visited July 13, 2016).

<sup>185</sup> <http://www.addaxbioenergy.com/uploads/PDF/Addax-Bioenergy-ESHIA-summary.pdf> ESHIA also notes that "[l]ocal communities subsist off the land and the project will result in the loss of access to an area of 14,300ha." African Development Bank Group, "Executive Summary of the Environmental, Social and Health Impact Assessment / ADDAX Bioenergy Project: Sierra Leone," p. 18.

<sup>186</sup> African Development Bank Group, *op. cit.* p. 19.

<sup>187</sup> See, e.g., Action Aid, "Broken Promises: The impacts of Addax Bioenergy in Sierra Leone on hunger and livelihoods" (September 2013), available at: [http://www.actionaid.org.uk/sites/default/files/publications/brokenpromises\\_0.pdf](http://www.actionaid.org.uk/sites/default/files/publications/brokenpromises_0.pdf) (last visited July 13, 2016); but see Addax response to such allegations, available at: [http://www.pangealink.org/wp-content/uploads/2013/09/ABSA\\_ActionAid\\_RedLine-for-Broken-Promises\\_V1\\_20130902.pdf](http://www.pangealink.org/wp-content/uploads/2013/09/ABSA_ActionAid_RedLine-for-Broken-Promises_V1_20130902.pdf) (link no longer working).

<sup>188</sup> The employment implications of this suspension are unclear at the time of writing; Addax's press release in June 2015 that it was downscaling operations noted that it was reducing expatriate consultants but that "most local employees will be maintained." Press Release, "Update on Addax Bioenergy operation in Sierra Leone," 2015, *op. cit.*, *supra* note 184. A newspaper article a couple of weeks later quoted a senior company official estimating that "it is feared that close to 2,000 jobs will be lost during this six months period." Abdul R. Thomas, "Addax Bioenergy operations in Sierra Leone is in serious financial trouble," *Sierra Leone Telegraph*, July 6, 2015, available at: <http://www.thesierraleonetelegraph.com/?p=9669> (last visited July 13, 2016). Addax's most recent announcement, in March 24, 2016, that the review process of the project was continuing made no mention of the job implications of its downscaling. Addax Bioenergy, "Latest update on Addax Bioenergy operation in Sierra Leone," March 24, 2016, available at: <http://www.addaxbioenergy.com/en/news.php?pages=1&idnews=40> (last visited July 13, 2016).

potential number of individuals affected.<sup>189</sup> Yet here, some caution must be used, for two main reasons. First, these calculations may only incorporate estimates of direct jobs generated by agricultural investments, rather than indirect or induced jobs (although investors and host governments are often not clear in terms of how they develop their estimates, or what types of jobs are included).<sup>190</sup> Second, for some crops, investors with large concessions may only conduct operations on certain parts of the concession area, thus leaving the possibility that only a percentage of those living on the concession area would actually be displaced at any given time. This also depends on whether the investor allows individuals or communities to continue living on or accessing unused parts of the concession area, or whether the investor denies the right to use allocated concession land even when it is not in use by the investor.

Despite these caveats, trying to understand the net job creation impact of agricultural investments in contexts where displacement of smallholder farmers has occurred due to the investment is quite important when considering the sustainable development impacts of such investment. Indeed, host governments concerned about generating livelihood options should assess the potential waged employment benefits offered by large-scale investments against the fact that smallholder agriculture is sometimes more labor intensive than large-scale commercial farming, particularly when the latter uses high levels of mechanization. Thus, the same parcel of agricultural land found in a concession could potentially support more smallholders than permanent waged workers under a plantation-style model.<sup>191</sup>

Moreover, not only might livelihood loss lead to fewer individuals being able to sustain their livelihood strategies, but it may also mean that former smallholder farmers who

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<sup>189</sup> See, e.g., Lorenzo Cotula, Sonja Vermeulen, Rebeca Leonard, and James Keeley, *Land Grab or Development Opportunity? Agricultural investment and international land deals in Africa* (London: International Institute for Environment and Development, 2009), using an example of a deal in Madagascar promising 4,500 part-time jobs for a concession of 450,000 to argue that the jobs are “small in number relative to the size of the investment.” See also Oakland Institute, “Understanding Land Investment Deals in Africa: The Myth of Job Creation,” 2011, op. cit. (“In Mali, Petrotech-ffn Agro MALI-sa (“Petrotech-ffn”) claims it will create 100 jobs on a holding of 10,000 has (ha). Yet, the Oakland Institute estimates a population density of 1 to 2 people per hectare in this lease area, which translates into at least 10,000 to 20,000 people who will be affected by the Petrotech-ffn land deal. The creation of only 100 jobs for 10,000 to 20,000 people is negligible.”) (footnote omitted).

<sup>190</sup> A further complication is that the rough estimates generally are not be able to take into account whether those direct jobs are year-round or seasonal, secure or insecure, or, on the other side, the importance of those affected livelihood strategies—for example, whether they constituted individuals’ primary livelihoods or provided supplemental support to other types of work.

<sup>191</sup> As Li points out, this is particularly true when considering an employment to land ratio that includes allocated land that is not used. For example, Li calculates that “[i]n Sambas district of West Kalimantan in 2006, for example, 15 such corporations held 199,200 ha, and employed only 1944 people, a ratio of 1:100. In contrast, non-oil palm smallholdings in Sambas covered 80,000 has and provided livelihoods for 207,350 people (Milieudedefensie et al. 2007, 20–21). If we exclude children, the per ha employment ratio for working adults is roughly 1:1.” Li. 2011, op. cit., p. 284.

have transitioned to waged work on the plantations created by the investment earn less than they had as smallholders, which is clearly sub-optimal from a sustainable development perspective. While this is very context specific, as noted above, the World Bank's examination of large-scale land acquisitions found that, generally, "[s]mallholders' income is 2 times to 10 times what they could obtain from wage employment only."<sup>192</sup> This helps explain the findings of a case study of oil palm plantations in Ghana, in which workers articulated their unhappiness over poor wages, noting that "what they now earn as workers does not equal their earlier benefits from farming oil palm, cocoa, citrus or food crops."<sup>193</sup>

This comparison examines the situation of smallholder farmers who are displaced by an investment and then become waged workers employed by the project or by a similar project. The situation is rendered more complex, however, given that the jobs created by an investment simply may not be offered to those who lose the most due to it.<sup>194</sup> Thus, some individuals may be better off as waged workers, while others in the same area may be worse off, having lost land or suffered "economic displacement" or loss of livelihood. Thus, depending on whom one asks – the worker with a job or the displaced person with neither a job nor the productive resources to which she once had access – the picture might look drastically different.<sup>195</sup>

For example, the 2012 FAO report, discussed above, that highlighted the job creation from agricultural investments in Cambodia that paid better wages than the minimum wages offered for garment workers also noted that "the benefits came at the expense of loss of land holdings and associated livelihoods by local communities."<sup>196</sup> Indeed, this may be a substantial understatement, as large-scale agricultural investments in Cambodia often occur in highly controversial contexts of forced evictions and human rights abuses. This example underscores yet another problem with considering the benefits of job creation in a vacuum, and also highlights that, at the very least, full

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<sup>192</sup> World Bank, 2011, op. cit., p. 35. Based on the World Bank's data regarding smallholder earnings versus waged work, Li agrees that smallholders who can viably produce should not seek to become waged workers on plantations, but argues further that this data indicates that, from a poverty reduction perspective, more should be done to move away from large-scale farms, both through land reform that breaks up large farms and land distribution programs in less populated areas that supports smallholders to produce viable crops. Li, 2011, op. cit., p. 285.

<sup>193</sup> Vath, 2013, op. cit. (parentheses omitted).

<sup>194</sup> Cotula and Vermeulen, 2011, op. cit. – "There is no guarantee that benefits will accrue to dispossessed rights-holders, but broader communities may gain, particularly in three areas: employment, supply chain involvement and infrastructure."

<sup>195</sup> As the World Bank has noted, "even the creation of large numbers of jobs may not always be perceived as an unmitigated benefit. This was particularly pronounced in cases where jobs were expected to provide compensation for land and where vulnerable groups lost access to some livelihood resources but did not benefit in terms of jobs." World Bank, 2011, op. cit. p. 69

<sup>196</sup> FAO, "The State of Food and Agriculture: Investing in Agriculture for a Better Future," 2012, op. cit., box 19.



compensation of displaced or otherwise affected individuals should be required.<sup>197</sup> In that regard, the creation of employment opportunities does not serve as appropriate compensation.<sup>198</sup>

Aside from direct displacement from land, large agricultural investments can also disrupt access to land or productive resources in other ways that negatively affect livelihoods. Large concessions can block common routes to farmland, water, or other resources, significantly restricting access or increasing time burdens. This may occur even when projects are not fully implemented, if access to productive resources is restricted.<sup>199</sup> Furthermore, just as mining operations can indirectly destroy livelihoods due to pollution or other negative environmental impacts, as discussed above, agricultural operations on concessions can detrimentally affect nearby resources on which individuals rely. These potential negative impacts also should be considered in evaluations of the net livelihood gain or loss from investments.

### *Closure or failure of a project*

Many agricultural investments could theoretically last indefinitely, given the renewable nature of land and water resources (assuming ecologically sound practices). Yet agricultural projects do close for various reasons. Some projects are designed for a limited duration, while others simply fail. Indeed, agricultural production is risky, and the failure of agricultural investment projects is not uncommon.<sup>200</sup>

These closures affect linked employment opportunities. The human costs of closed or failed projects can be great, ranging from job losses for those who had been employed, to continued livelihood disruptions for those who were previously displaced from the land. These negative impacts are not confined to projects that were completely

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<sup>197</sup> Human rights norms provide guidance on development-based evictions such as those instigated by large agricultural investments; generally, cash compensation is not appropriate. Rather, for persons who relied on the land and who do not want cash, compensation should take the form of land that is equal or better to that taken in respect of quality, size and value. United Nations, “Basic Principles and Guidelines on Development-Based Evictions and Displacement,” available at: [http://www.ohchr.org/Documents/Issues/Housing/Guidelines\\_en.pdf](http://www.ohchr.org/Documents/Issues/Housing/Guidelines_en.pdf) (last visited July 13, 2016); see also United Nations SDSN, “Harnessing Natural Resources for Sustainable Development: Challenges and Solutions,” available at: <http://unsdsn.org/wp-content/uploads/2014/02/TG10-Final-Report.pdf> (last visited July 13, 2016), p. 12. Of course, even robust compensation cannot assuage more intangible losses related to socio-cultural impacts; for many people, particular areas of land have significance that cannot be calculated.

<sup>198</sup> Aside from equity and rights reasons, there is a business case to avoid this, too, as disappointment with the paucity of employment options can create conflict. See, e.g., World Bank, 2011, op. cit., p. 69.

<sup>199</sup> See, e.g., World Bank, 2011, op. cit., p. 68.

<sup>200</sup> Lorenzo Cotula, “Addressing the human rights impacts of ‘land grabbing’” 15 (2014) (“evidence suggests that failure rates in the latest wave of agribusiness investments have been high”).

operational and then stopped; similarly negative effects may flow from projects that were never fully implemented.

Just as with mining investments, post-closure planning thus constitutes an important best practice for agricultural investments. This can include ensuring that sufficient safety nets exist to mitigate the negative impacts of closure or failure. Host governments and other stakeholders should also pay particular attention to what will happen to the land once a project ends. Providing mechanisms for formerly displaced residents to gain renewed access to the land may be the most appropriate option in many cases.<sup>201</sup> This could include “policies ... that allow the transfer of [failed projects’] ... productive assets (including land) to more productive uses to prevent speculation.”<sup>202</sup>

### 3.4 Conclusion

The debate around large-scale agricultural investments is contentious. Such investments are sometimes justified primarily based on their potential to generate waged employment, and investments that promise high numbers of jobs may be perceived as attractive to host governments or other actors. Yet critics raise a number of concerns about these types of investments, particularly when they require displacement of previous land users. This points to the need to unpack the job claims, including what types of jobs are being created, and how the net livelihood impacts of investments may affect sustainable development. This question becomes particularly important when assessing whether other models of agricultural investments may be more appropriate than large-scale land-based investments.

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<sup>201</sup> See, e.g., Kaitlin Cordes, Lise Johnson and Sam Szoke-Burke, *Land deal dilemmas: Grievances, human rights, and investor protections*, Columbia Center on Sustainable Investment (March 2016), p. 26, Box 16.

<sup>202</sup> Klaus Deininger, “Challenges posed by the new wave of farmland investment,” 38(2) *Journal of Peasant Studies* 217-247 (March 24, 2011) p. 235 (noting also that “[t]here are many examples, from rubber in East Asia to Australia and the US Midwest where mega-farms were eventually replaced by much smaller owner-operated units of production”).

## Section 4. Government policies for job creation

In light of the previous discussion, the following section examines the various policies that governments have implemented or could implement to support the job creation potential of investments in mining and agriculture. This includes policies that aim to increase the number of direct jobs supported by an investment, as well as policies that seek to generate indirect or induced employment, or to tie investments to local development more generally. Taken together, these policies provide a number of tools that policymakers can employ in their efforts to optimize the impact of large-scale investments in mining and agriculture for employment and livelihood.

### 4.1 Maximizing the long-term development impact of and employment creation from mining investment

Traditionally, and partly due to the influence of various economic development theories, strategies aiming to maximize the development impact of mining have focused on either “the fiscal linkage” or “production/consumption linkages” along with employment generation. At the root of this dichotomous vision has been the image of mining as a capital-intensive enclave activity with limited connections to the rest of the economy but with large potential for generating fiscal revenue (unlike agriculture, which is assumed to have opposite characteristics). Depending on which side of the dichotomy dominates policy formulation in a given context, governments generally choose to focus on either maximizing fiscal revenue, including through a combination of investment attraction and fiscal design, or to strengthening linkages, thereby raising employment and local content.

#### *The apparent contradiction between revenue maximization and employment creation*

From the point of view of most low- and middle-income country governments, the strategic choice identified above manifests itself as two sets of objectives that dictate policies with respect to the mining sector: fiscal objectives—most importantly, maximizing government revenue—and broader developmental goals, including maximizing employment creation.<sup>203</sup> The two sets of objectives are not necessarily contradictory: in the long run, success under one set of objectives may be closely

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<sup>203</sup> Other developmental objectives that are relevant in this context may be poverty reduction, a more equal income distribution, and improved health and education. While increased employment tends to be correlated with all of these, the causal relationships may be complex.

correlated with success under the other. Superficially and in the short term, however, governments may view them as opposing goals. This section discusses this point.

Arguably, governments seeking to raise employment and tax revenue from mining over the long term could increase the attractiveness of their investment regimes, with attendant benefits to development. However, low- and middle-income country governments have found it difficult to follow this strategy for a number of reasons.

First, governments may doubt that measures intended to attract investment—specifically, lower or more appropriately designed taxes—will succeed. In particular, they may not be convinced that tax revenue forgone in the short to medium term as a result of a tax regime that is attractive to investors will be offset by long-term gains. This may be the case in particular if the country in question already has significant mining activity. Lower taxes and other incentives intended to attract new investment that also benefit existing mines could result in losses of significant tax revenue.

Second, the harsh budget constraints facing poor countries and the perceived limits to job creation in mining will tend to influence governments in the direction of emphasizing short-term gains in revenue.

Third, as experience shows, a government that implements policies aimed at attracting mining investment will have to be prepared to face strong criticism. This is so, in particular, since some of the most important measures that were typically included in legislative changes in the 1990s and early 2000s were interpreted by public opinion as providing unfair advantages to mining firms.<sup>204</sup> This is not to say that governments in some cases did not conclude costly or otherwise problematic agreements. However, those agreements, which sometimes included inefficient and expensive elements such as tax holidays, were usually the outcome of direct negotiations over individual projects shrouded in opacity and corruption rather than the result of broader changes to mining regulations. Accordingly, the fault lay not with the investment regime as such but rather with the government negotiators' lack of experience or integrity.

As a result of these factors, many, and maybe most, governments have designed investment and tax regimes that attract less mining investment than would otherwise be possible. For instance, governments rely less on profits taxes and more on royalties, which provide earlier and more stable revenues but which raise operating costs and

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<sup>204</sup> Typically, these measures included accelerated depreciation and amortization, whereby companies can write down investments more quickly than normally. This is an important advantage to investors, who are anxious to recover capital costs quickly, and is usually considered a minor cost to governments, who will receive the same tax payments, only distributed over a longer period. In the early years of projects, however, an outside observer may think that companies are paying disproportionately little in taxes, and the explanation that they will pay more in the future may not always be believed.

therefore result in lower than economically efficient exploitation of deposits.<sup>205</sup> Ideally, in order to maximize revenues and achieve an optimal rate of exploitation, governments should tax rents<sup>206</sup> rather than turnover. Given the difficulties in accurately assessing rents and practical complications such as allocating common costs among several different deposits operated by the same company, however, very few governments have chosen to attempt to tax rents. At the same time, many governments have offered stable conditions to investors, usually through formal stability clauses in agreements or legislation.<sup>207</sup> An offer of stability is attractive to investors since it reduces risk significantly, provided, of course, that the offer is regarded as credible, including by the investor's creditors.

For all the reasons described, employment in practice often becomes a second order objective that is mainly met by introducing conditions on mining investment and by more general development policies rather than by attempting to increase investment in mining.

Moreover, for reasons having to do with the time horizons relevant to governments and uncertainty with respect to longer-term developments and the dynamic effects of mining investment on employment, government policies sometimes do not attempt to exploit the full potential for job creation around mining. In particular, governments may be unwilling to invest political capital in promoting linkages that in the long term may result in higher revenue. The dilemma is illustrated by Figure 1. The graph on the left of the figure shows the shares of revenue from a mining project that accrue to different parties.<sup>208</sup> The graph on the right shows how the 55 percent of total revenues that are collected by suppliers are distributed among different types of enterprises. The numbers are representative of a low- to medium-income country with a relatively low capacity to supply goods used in mining. It is seen from the two figures that the share of local suppliers of services at 22 percent (40 percent of 55 percent) is larger than that of the government. If suppliers of locally produced goods are added, the local suppliers' share of the total increases to 24.75 percent. If it is conservatively assumed that half of the suppliers' revenues go to wages and salaries (most suppliers' businesses being

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<sup>205</sup> According to an overview of mining tax rates, the trend is that countries have increased royalty rates in recent years (PWC, "Corporate income taxes, mining royalties and other mining taxes: A summary of rates and rules in selected countries," (2012)).

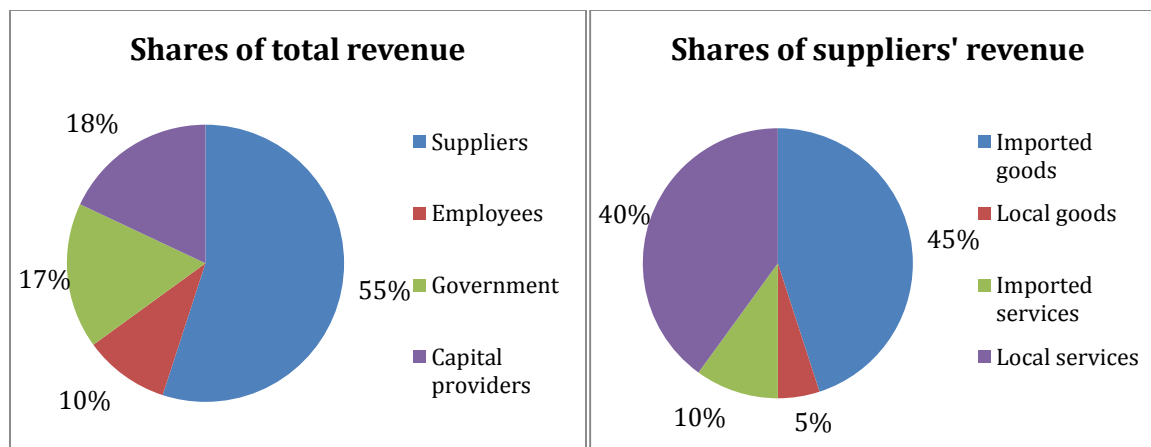
<sup>206</sup> Rent is commonly defined as being the profit that is made above the rate of return necessary to attract capital in the mining project.

<sup>207</sup> Several governments have found that such clauses need to be limited in time, since they risk becoming increasingly out of line with other legislation over time. From the point of view of investors, the need for a stability clause also declines once the original capital outlay has been recovered. It is generally agreed that stability clauses should be limited to fiscal aspects.

<sup>208</sup> It should be noted that although the figure illustrates a specific mine, a medium-size gold mine, the shares usually vary remarkably little from one mine to another, at least in the authors' experience.

much less capital intensive than mining), then labor income from the project represents about 22 percent (half of 24.75 percent plus 10 percent for mining company employees) of the project revenue, significantly more than the tax revenue.

**Figure 1. Shares of mining project revenue and suppliers' revenue, percent**



Source: Authors' estimates

These numbers illustrate that it may be in a government's interest to pay particular attention to indirect job creation, as even a relatively small increase in the share of local suppliers to the mining project will have a significant impact on both employment and on government tax revenues—suppliers to the mining industry and their employees also pay taxes.<sup>209</sup> These numbers also illustrate that the main employment return from mining investment comes from the activities linked to mining rather than from mining itself. This employment return may be even higher if complementary investment in, for instance, infrastructure and training is included. Moreover, mining tax revenue may create the fiscal room of maneuver to invest in other employment promoting measures.

Governments may, however, hesitate to pursue policies that place employment generation ahead of short-term maximization of tax revenue, given the possible political costs of appearing to yield too much to investors. From the government's point of view, the returns to a policy aimed to attract investment are uncertain and will materialize

<sup>209</sup> An indirect illustration of the potential importance of taxes on employees' salaries is provided by the example of Zambia. Taxes on mining employees' salaries (Pay As You Earn, or PAYE) accounted for 3-5 per cent of total Zambian tax revenues in the years 2007-2012. Until 2009 they represented the most important tax revenue from mining, until rising metals prices and the exhaustion of depreciation allowances raised the amounts of royalties and corporate income taxes (Chamber of Mines and ICMM, "Enhancing mining's contribution to the Zambian economy and society," (April 2014).

only in the longer term. Nevertheless, if the objective is sustainable long-term growth, policies that support the establishment of linkages and the development of a diversified local economy around mining may in the long run yield a higher return in terms of employment and growth than revenue maximizing policies focusing on raising the government's share of total revenues. While the two policy directions are in principle not contradictory, in practice most governments have emphasized short-term revenue generation. When the two policy objectives clearly point in different directions, as in the case of whether and how much to require in royalties paid to the government, it is rare to see employment creation gain the upper hand.<sup>210</sup>

The following section explores how some countries have chosen to pursue employment creation from mining investments, even when such strategies may require that they give up some revenue, either to attract investment or to share revenues with local communities in areas affected by mining.

#### *Policies targeting direct employment of local workers*

Although governments are usually anxious to maximize the number of their nationals employed in a mining operation, most governments tend to accept that the total number of all employees, irrespective of their origin, is determined by technology and deposit characteristics and cannot be too tightly regulated without jeopardizing the economic viability of the mining operation. Moreover, even where governments believe that it might be possible for a given company to employ more local individuals, their leverage with investors is limited.

Nevertheless, more or less binding targets can be established for local employment in either legislation or negotiated contracts. Agreements or legislation may provide less quantitative objectives with respect to specific kinds of employment. For example, it is quite common for countries to require that nationals of the country be given priority in hiring and that the number of foreign employees be kept to a minimum. For example, the Mining Operations Proclamation of Ethiopia states that "a licensee shall have the obligations to (...) give preference to the employment of Ethiopian nationals, provided that such persons have the required qualifications."<sup>211</sup> Kazakhstan uses a more explicit

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<sup>210</sup> Most royalties are a tax on volume or value of production. Thus, they add directly to production costs, with a typical royalty of 5 percent *per valorem* adding as much as 10 percent to operating costs, thereby making lower grade parts of mineral deposits unprofitable to mine. Consequently, output and employment will be lower than it would otherwise have been.

<sup>211</sup> Ethiopia, Mining Operations Proclamation No. 678/2010, Article 34.1/h.

and demanding rule, requiring 95 percent of employees to be citizens of Kazakhstan.<sup>212</sup> Similarly, Ghana requires mining companies to observe precise limits on the percentage of expatriates at different stages of the project.<sup>213</sup> Quantitative targets for employment are also usually contained in Mineral Development Agreements (MDAs), which may specify additional conditions with employment implications, such as sourcing of inputs from local enterprises.

While legislation and MDAs provide ways for governments to set out local employment requirements, their effectiveness may be limited by a government's lack of in-depth knowledge of the operations in question and by the lack of adequate financial and human resources to monitor and enforce their requirements. Close monitoring of companies' activities requires significant staff resources, which governments may not have. In addition, governments may lack the competence to evaluate claims by companies that their operations cannot employ more people economically. Moreover, if the necessary skills are not present, the company might be obliged to add non-productive jobs, possibly undermining project economy and providing less lasting benefit to the employees. Companies may also choose to circumvent the requirements. For example, in order to adjust to the local employment requirements in Ghana, some companies have found it easier to relocate company divisions outside of Ghana than to recruit a sufficient number of nationals to satisfy regulations.<sup>214</sup>

Accordingly, although many governments do set targets for employment, they often find it more effective to focus on how companies may be persuaded that it is in their own best interest to train and employ local individuals.

### *Policies targeting employment directly through increased investment*

In some high-income countries, where the creation of employment in disadvantaged regions is a high priority but where direct negotiation or regulation of the number of employees may conflict with international obligations and does not form part of the political culture, at least not explicitly, governments may try to achieve results through

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<sup>212</sup> A. M. Esteves, V. Ogorodnikova, C. Putz, and B. Coyne, "Increasing Domestic Procurement by the Mining Industry in Central Asia," report prepared for the World Bank (2013).

<sup>213</sup> Columbia Center on Sustainable Investment, "Local Content: Ghana – Mining," (2014) available at: <http://ccsi.columbia.edu/files/2013/07/Local-Content-Ghana-mining-CCSI-June-2014.pdf> (last visited July 13, 2016).

<sup>214</sup> Sustainable Development Strategies Group (SDSG), "African Mining and Mining Administration Skills Gap Analysis," prepared by Sustainable Development Strategies Group for the Australia-Africa Partnership Facility (AAPF) (October 18, 2012). This includes the relocation of Gold Fields' West African Head Office from Ghana to South Africa.



the promotion of investment.<sup>215</sup> Thus, countries in northern Europe, particularly Finland and Sweden,<sup>216</sup> have created attractive environments for mining investment precisely because mining investment tends to target parts of the countries (the northern parts in these two cases) with high unemployment.<sup>217</sup> Since mining is unlikely to ever become a very important source of government revenue for these governments, generous taxation policies<sup>218</sup> can be used to attract mining investment to sparsely populated areas without any great sacrifice. The thinking behind such policies reveals an awareness of the importance of induced employment to ensure that the population in sparsely populated areas does not fall below a critical level needed to maintain commercial and public infrastructure.

As far as is known, there has been no attempt to formally evaluate the effectiveness of the policies pursued in the two countries. However, the number of employees in the mining industry in Sweden, which had been on a rapidly declining trend, levelled out after reforms in 1992 and increased from 4,446 in 2000 to 5,922 in 2012, while the number of mines declined slightly. Perhaps more important than this relatively modest, although increasing, number is the fact that more than 80 percent of the employment increase occurred in sparsely populated areas in the two northern counties, where, including multiplier effects, the employment effect, particularly in terms of induced employment, was significant.<sup>219</sup> Another possible indication of the degree of success of the policy with respect to investment attraction is that the number of new exploration permits in Sweden more than doubled between 1992 and 2012. Much higher peaks, at four and five times the 1992 level respectively, were reached in 1999 and 2006.<sup>220</sup> While the number of mines, as already mentioned, declined slightly, the dramatic rise in exploration activity would be expected to eventually, with a relatively long time lag, result in new mines being opened. Several new mines are now at the permitting stage.

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<sup>215</sup> The Swedish government's mineral strategy states in its preamble "The mining industry is of great importance for the country's growth and economy. It creates employment opportunities in surrounding areas, contributes to strengthened attraction and creates growth in parts of the country that have long had declining populations." (Government of Sweden, "Sveriges mineralstrategi," ("Sweden's mineral strategy," author's translation) 2013).

<sup>216</sup> Sweden and Finland placed first and second respectively in the Fraser Institute 2013 Policy Perception Index. The ten highest ranked jurisdictions were all developed country ones.

<sup>217</sup> Sweden has a relatively low rate of corporate income tax at 22 percent. The only mining specific tax is a royalty at 0.2 per cent of gross value of production, three quarters of which goes to the landowner. A new mining law in 1992 eliminated a number of restrictions on mining investment.

<sup>218</sup> It should be noted that it is common practice to levy more taxes on mining than on other industries so that "generous investment conditions" usually means that mining companies do not pay more taxes than, for instance, manufacturing companies.

<sup>219</sup> See, for instance, Thomas Ejdemo and Patrik Söderholm, "Local economic impact assessment of the Tapuli and Stora Sahavaara mining projects," Raw Materials Group (2008); Tommy Lind, "Modelling socio-economic impacts of new mines in the interior of Västerbotten," Department of Social and Economic Geography, Umeå University (2009).

<sup>220</sup> Swedish Geological Survey, "Bergverksstatistik" (Mineral statistics) (2012).

As was noted above, for most low- and middle-income countries, tax revenue from the mining sector is seen as potentially or actually too important to allow governments to focus exclusively on raising employment by attracting investment through tax incentives. Although such countries do adopt employment promotion policies that focus on the creation of special trade zones and similar arrangements associated with large tax exemptions, these arrangements often exclude mining. This does not mean that fiscal incentives are never offered for mining projects, however. Rather, mining usually qualifies—along with other sectors—for broad general investment incentives, such as accelerated depreciation, loss carry forward provisions, duty free imports, and VAT exemptions.

### *Revenue sharing*

In many countries, tax revenue from mining is shared between national and lower-level governments. There is often strong political pressure for revenue sharing; it is sometimes argued that such sharing is necessary to ensure that the local communities affected by mining are able to benefit or that local communities receive additional public expenditure to help mitigate mining's negative side effects.<sup>221</sup> Sharing the tax revenues will, it is argued, allow more jobs to be created locally, as local authorities may be better at identifying opportunities than the central government, both because they may be more aware of specific needs for public services and because they have more detailed knowledge of the capacity of local enterprises.

Arrangements for revenue sharing can be categorized according to two criteria:<sup>222</sup>

- **The degree of fiscal decentralization**, affecting the way a nation empowers various parts and levels of its government to impose and collect taxes and fees from the private sector.
- **The degree of revenue sharing**, affecting how revenues collected by one or more parts of government are allocated for distribution to other governmental entities or for various investments or expenditures to non-governmental entities.

Fiscal decentralization is more common in federal states such as Australia, Canada, and the United States, where it is a direct consequence of the jurisdiction that states or provinces hold over mineral legislation and taxation. In other countries, fiscal decentralization is an exception and revenue sharing is more common.

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<sup>221</sup> ICMM, "Minerals Taxation Regimes: A review of issues and challenges in their design and application Minerals Taxation Regimes: A review of issues and challenges in their design and application" (Feb 2009).

<sup>222</sup> James Otto, "Fiscal Decentralization and Mining Taxation," for the World Bank Group Mining Department (March 2001).

In general, revenue sharing has become more widespread in recent years. In Africa, the governments of the Democratic Republic of Congo (DRC), Ghana, Mozambique, and Uganda share royalties and/or corporate income tax proceeds with lower level governments and local communities, while Botswana, Burkina Faso, the DRC, and Madagascar share license fees.<sup>223</sup> However, revenue sharing is not yet the rule in mining economies. In some mining countries, such as Chile and Tanzania, the central government does not share mineral revenues with lower-level authorities.

Peru provides an interesting case study, with a rich and varied history of applying revenue sharing in different ways. The approaches used are also well documented. Box 5 provides more information on the Peruvian experience.

#### **Box 5 - Revenue sharing in Peru: the Canon Minero**

The most significant mining revenues in Peru flow from corporate income taxes, which are collected at the central government level. Through the “Canon Minero” mechanism, part of this revenue is directly redistributed to sub-national governments. The rules governing this mechanism have been subject to change over the years. This has been partly in reaction to efforts to push for greater government decentralization, and partly to demonstrate to sub-national governments the benefits of accepting mining operations in their jurisdictions. Since 2003, the proportion of corporate income tax paid by mining companies that is redistributed has been 50 percent. Transfers through the Canon Minero increased dramatically from 81 million Nuevos Soles (US\$ 29 million) in 2001 to 5,097 million Nuevos Soles (US\$ 1.82 billion) in 2012. The criteria for distribution have changed several times.<sup>224</sup>

In addition, in 2005, a royalty tax was introduced, which accrues to sub-national entities in whose jurisdictions mining takes place. However, most large mining companies operating in Peru signed contracts with stabilization clauses with the government in the 1990s; as a result, few of them pay any royalties. To address this, a “Voluntary Support Fund” (Programa Minero Solidaridad con el Pueblo) was negotiated with the industry in 2006. Under this arrangement, participating companies are expected to contribute 3.75 percent of after tax profits to local development projects.

In respect of job creation, the most important question is whether the additional financial resources provided to sub-national governments have had a positive effect on employment and incomes. For example, a visible increase in construction employment could be expected, because the Canon Minero funds can in principle only be used for capital investment. Much of the investment of these resources has been made in buildings for social services, such as education and health care, however, where effects would only be expected in the longer term.

<sup>223</sup> United Nations Economic Commission for Africa, “Comparative royalty table,” mimeo (2008).

<sup>224</sup> Sociedad Nacional de Minería, “Petróleo y Energía,” available at: <http://www.snmpe.org.pe/pdf/183/que-es-el-canon-minero.pdf> (last visited November 19, 2013).

A few studies have tried to assess the effects of revenue sharing on employment outcomes.<sup>225</sup> To the authors' knowledge, there is no evidence that revenue sharing has had a significant impact on employment or incomes in mining areas. A recent study of one particular mine, the Yanacocha, concluded that the only significant effects of the mine on employment could be attributed to the mine's and its employees' local purchases (indirect and induced employment). These effects were concentrated in the neighborhood of the mine and declined with distance.<sup>226</sup>

Accordingly, it would appear that the investments financed through the Canon Minero have contributed little to the development of local economies or to job generation. One reason may be that, as can be concluded from the study just cited, in spite of the impressive amounts that have been redistributed in some cases, the sums are still modest compared to the impact of the mine's and mine workers' spending.

Very few if any systematic efforts have been made to evaluate the outcome of revenue sharing schemes in other countries. Anecdotal evidence suggests, however, that the employment impact is modest. For instance, one report summarizing the results of four country case studies (including Peru) found that the two countries that implemented revenue sharing (Ghana and Peru) showed less progress in reducing poverty in the regions surrounding large-scale mines than the two countries that did not (Chile and Tanzania).<sup>227</sup> An oft-mentioned reason for this is the limited capacity of local governments to plan and to spend revenue productively.<sup>228</sup>

### *Cooperative efforts for training*

As already mentioned, some governments negotiate targets for employment of nationals, although it is uncertain whether such policies have positive long-term benefits.

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<sup>225</sup> Some such studies are quoted in E. Baca Tupayachi, "Generación, distribución y uso de la Renta de las Industrias Extractivas," presentation by Grupo Propuesta Ciudadana, (January 2012).

<sup>226</sup> Fernando M. Aragón and Juan Pablo Rud. "Natural Resources and Local Communities: Evidence from a Peruvian Gold Mine," 5(2) *American Economic Journal: Economic Policy* 1-25 (2013); Alfredo M. Loayza, and Teran Jamele Rigolini, "Poverty, Inequality and the Local Natural Resource Curse," Forschungsinstitut zur Zukunft der Arbeit; IZA DP No. 7226 (2013).

<sup>227</sup> ICMM, "Synthesis of Four Country Case Studies," (April 2006).

<sup>228</sup> See, for instance, the literature review conducted by Jim Cust and Steven Poelhekke in "The Local Economic Impacts of Natural Resource Extraction," 2015, leading to the same finding. In particular, they mention the work done by Perry and Oliveria (2009) that document the experience of Colombia, where the oil and coal royalties are shared between the federal level and the region. There, a study showed that royalty sharing increased income only in regions that already had a strong capacity to generate tax income, thereby illustrating the correlation between the governments' capacity to raise taxes and the government's capacity to spend effectively to improve development outcomes (source: G. Perry, M. Oliveria, "Natural Resources, Institutions and Economic Performance," Fedesarrollo Working Paper (November 2009).

For this reason, most governments emphasize training as a measure that is more productive in the long term. Government policies usually focus on providing or facilitating training and vocational education or requiring mining companies to do so. Experience seems to show that training programmes for the mining sector work best when designed and implemented in cooperation between mining companies and the government.<sup>229</sup> While mining companies have detailed knowledge of the skills required, governments usually know more about general skills levels and have the means to directly influence school curricula.

The more impressive programs have been carried out in places where the existing skill levels were very low, although programs developed in areas with higher skill levels have also been successful. One example from a region with higher skill levels is an effort associated with the Diavik Diamond Mine in Canada's Northwest Territories, where an integrated approach to local training, employment, and procurement was applied, with commitments formalized in a series of agreements and policy statements.<sup>230</sup> The approach included a Socio-Economic Monitoring Agreement (SEMA) negotiated with the Government of the Northwest Territories and five neighboring Aboriginal groups in 1999. The mine also signed five *Participation Agreements* (PAs) directly with neighboring indigenous communities, which covered training and employment. By 2008, the mine employed about 800 people and had met its target of having 67 percent of its work force comprised of Northern residents. Although the mine did not meet its Aboriginal employment commitment, reaching 34 percent instead of the targeted 42 percent in 2008, the absolute number of people hired was far higher than the original estimate.

Another example is provided by the Sepon Mining Project, a gold and copper mine located in southern Lao PDR.<sup>231</sup> MMG Sepon is committed to giving preference to employing people from the communities and areas closest to its operations. Recruitment, at least in the mine's initial stages was specifically to be based on "aptitude" rather than "formal education qualifications"—a tactic designed to bypass the lower levels of schooling of one of the two linguistic groups in the area. Between 2004 and 2006, more than 50 percent of job vacancies were filled by people living in the vicinity of MMG Sepon's operation. In 2007, this rate started to decline, and seems to

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<sup>229</sup> In northern Chile, for instance, a vocational school set up by a mining company after consultation with the government was turned over to the government and has continued educating skilled staff for the local mining industry (ICMM, "Chile. The Challenge of Mineral Wealth: using resource endowments to foster sustainable development," (March 2007)). Other examples, particularly with respect to training programs for local communities, are cited in OPM, 2013, *Sustainable Mining: How good practices in the mining sector contribute to more and better jobs*, Report to ILO.

<sup>230</sup> The description is based on ICMM, "Mapping in-country partnerships," (2010).

<sup>231</sup> The description here is mainly based on ICMM, "Utilizing mining and mineral resources to foster the sustainable development of the Lao PDR," (2011), and on personal communications from MMG Sepon officials.

have stabilized in 2008 and 2009 at around 35 percent. In addition to giving priority to people from the local communities, MMG Sepon also gives priority to women, and the percentage of female employees has varied from 15 to 19 percent, somewhat higher than normal in the industry.<sup>232</sup>

We will now address the various policies used to influence the ways in which linkages can be supported and finally, we will conclude by discussing policies that aim at supporting the establishment of a diversified local economy.

### *Policies targeting linkages*

Many government policies for more and better employment in mining rely on traditional industrial policy prescriptions, with an emphasis on providing incentives that will drive structural change and industrial transformation. The intellectual roots of these policies, which all emphasize the importance of establishing and strengthening various types of linkages, can be found in theories about supply chains and clusters.<sup>233</sup> However, where the theories attempt to describe and explain the processes by which industries are established, the policy formulations rest on the conviction that these processes can be influenced by governments. Although this is likely possible, methods of doing so are as of yet not well developed. Two frequently used types of policies relate to encouraging local content and increased processing.

### *Local content policies*

A number of countries have introduced legislation intended to encourage the establishment and strengthening of backward linkages from mining that will increase local content (see section 1.1 for definitions).<sup>234</sup> A first difficulty for these countries is to define local content, particularly for goods. In most cases, local content is assumed to be represented by goods bought from local companies. However, that a company is owned by nationals of the host country or that its facilities are located in the host country does not necessarily mean that its merchandise is locally produced. Yet to analyze the proportion of local value added for each potential producer is usually too time consuming and burdensome for most investors or government monitoring

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<sup>232</sup> According to the World Bank, women seldom account for more than 10 percent of mining employees, and usually this proportion is below 5 percent. World Bank, "Gender Dimensions of the Extractive Industries," Mining for Equity Extractive Industries and Development Series No. 8 (2009).

<sup>233</sup> See, for instance, Michael E. Porter, "Clusters and the New Economics of Competition," *Harvard Business Review* (November-December 1998); Raphael Kaplinsky and Mike Morris, "A Handbook for Value Chain Research," prepared for the IDRC, (2001).

<sup>234</sup> Local content policies usually include employment and training requirements. Given that this paper is focused on job creation, however, we separated out the direct employment question from the topic of local content, and focus our discussion here on local procurement that generates indirect employment.

authorities.<sup>235</sup> Accordingly, most countries choose a less laborious way of classifying suppliers to mining companies. For suppliers of services, the task is of course less complicated, since it is easier to determine the nationality of somebody carrying out a particular service.

Most countries are, in principle, constrained by World Trade Organization (WTO) commitments in terms of the requirements they can impose with respect to local content. Members of the WTO are bound by the national treatment obligation (NTO) clause under which foreign companies cannot be forced to buy goods<sup>236</sup> from local suppliers or hire suppliers of certain services<sup>237</sup> if a better alternative in terms of price or quality exists abroad. Legislation can still require investors not to discriminate against local suppliers. Additionally, under one interpretation, legislation can also require investors to accord local suppliers preferences if their prices and quality are equal to those of foreign suppliers.<sup>238</sup> To the authors' knowledge, this interpretation has not been tested under the WTO dispute settlement procedures.

Least Developed Countries (LDCs) are exempted from these WTO rules, but the exemption will expire in 2020. In addition to the WTO rules, international investment agreements, including bilateral investment agreements – or BITs – between a host and home state, can limit the possibility to legislate in favor of local content or restrict the employment of foreigners. Indeed, some agreements go further than the WTO

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<sup>235</sup> There are exceptions, where governments have gone to the trouble of measuring actual local content. For instance, the government of Kazakhstan has formalized the measurement of local content in goods, works, and services, using the “Uniform Method of Kazakh Content Calculation” (Government’s Decree No. 367/2010).

<sup>236</sup> All World Trade Organization (WTO) Members must adopt and abide by the obligations of the Trade Related Investment Measures (TRIMs). The TRIMs Agreement clarifies existing rules contained in Articles III (National Treatment Obligation (NTO)) and XI (Prohibition on Quantitative Restrictions) of the General Agreement on Tariffs and Trade (GATT), 1994. The following types of local content requirements are covered by TRIMs: requiring a company to purchase or use products of domestic origin (TRIMs prohibits discrimination between goods of domestic and imported origin); limiting the amount of imported products that an enterprise may purchase or use depending on the volume or value of local products that the enterprise exports; restricting foreign exchange necessary to import (e.g., restricting the importation by an enterprise of products used in local production by restricting its access to foreign exchange); and restricting exports.

<sup>237</sup> A separate WTO agreement, the General Agreement on Trade in Services (“GATS”), covers investment measures related to services (in Article XVI). GATS only applies to those service sectors that the country chooses to include in its Schedule of Commitments.

<sup>238</sup> For instance see the wording of the MMDA project: “The Company shall, when purchasing goods and services required with respect to Mining operations, give first preference, at comparable quality, delivery schedule and price, to goods produced in the State and services provided by the State citizens or businesses, subject to technical acceptability and availability of the relevant goods and services in the State” (International Bar Association, Model Mine Development Agreement, April 4, 2011, available at: [www.mmdaproject.org](http://www.mmdaproject.org)).

provisions, prohibiting all types of measures related to local content and performance requirements in general.<sup>239</sup>

Some countries use legislation or contracts to express a general preference for local content, but without mandating specific requirements. This includes relatively successful mining countries, such as Peru and Australia, and, in the past, Chile.<sup>240</sup> Other countries have more specific requirements stated in legislation or regulatory instruments—in some cases applying fairly “blunt” industry-wide requirements. Kazakhstan, for instance, has required mining investors to negotiate a binding agreement with the government establishing a certain percentage of local content; it also has required that companies issuing tenders reduce the price in bids of local suppliers by 20 percent.<sup>241</sup> Following its admission to the WTO in November 2015, however, Kazakhstan committed to take measures to review and amend, including through legislation, all of its “blunt” requirements that are inconsistent with the WTO by the end of its transitional period.<sup>242</sup>

Many countries require mining companies to submit their own plans to increase domestic content over time. This approach recognizes both the time it takes to build capabilities and skills, as well as the fact that issues may vary across different types of mining companies and at different stages in the life cycle of a particular mine. In some countries, including Australia, Tanzania, Guinea, and Indonesia, legislation requires that such plans be developed as part of a company’s licensing procedure.

In conclusion, local content policies exist on a spectrum that ranges from broad policy priorities to industry-wide “blunt instruments,” and may be included in legislation or in specific contracts. In part because more assertive mandated local content is relatively new, there is limited evidence of its impact on business decisions. Experience from Kazakhstan, which has a firm policy in this area, with targets and stiff penalties for not achieving them, is not extremely encouraging. During the period from 2010-2012, for

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<sup>239</sup> Performance requirements are measures in law, regulation, or contract that require investors to meet specified goals when entering, operating or expanding in, or leaving a host country. Some are strictly mandatory; others are imposed as a condition for receiving some sort of added benefit or advantage. For an explanation of the nexus of international law and local content, please visit CCSI’s legal profiles: <http://ccsi.columbia.edu/work/projects/local-content-laws-contractual-provisions/>

<sup>240</sup> After achieving its objectives, Chile phased out all legal requirements regarding local content. Norway did the same (McKinsey Global Institute, “Reversing the curse: Maximizing the potential of resource-driven economies,” (December 2013)).

<sup>241</sup> Esteves, Ogorodnikova, Putz, and Coyne, 2013, op. cit.

<sup>242</sup> Kazakhstan will introduce amendments to its Law “On Subsurface and Subsurface Use” aimed at removing measures inconsistent with the WTO TRIMs Agreement; it will also sign supplementary agreements with subsurface users that remove from inconsistent measures from investment contracts. These actions will be undertaken before the transitional period ends in 2021. World Trade Organization, Accessions Commitments Database, Article 0889, available at: <http://acdb.wto.org/tabs.aspx> (last visited July 14, 2016).



example, local content in goods was between 13 and 14 percent, which is perhaps less than one would have expected and not significantly more than in other countries at a similar income level. Local content in services rose from 81.5 to 92.1 percent during the same time period, but this also is not markedly better than in other similar countries.<sup>243</sup> Many local content regulations—Kazakhstan’s are a good example—require significant monitoring and reporting that carries costs for both government and companies. Such monitoring and reporting requirements are unlikely to be consistently enforced by government administrations with limited resources or capacity.

Aside from explicit local content requirements, another policy that could promote local suppliers, but that is not frequently used in low- and middle-income countries, is to not allow mining investors to import equipment free of duty. Where such equipment can be sourced locally it may appear somewhat misplaced to give mining companies preferred treatment compared to other users of the same equipment (much of the equipment and inputs used in mining is used also in other industries). Because the possibility of importing equipment duty free is common in mining countries, to the extent that investors have come to expect it, the government may have to take other steps to ensure that the overall attractiveness of the country as an investment destination is not negatively affected. The cost of such steps, however, would be at least partly offset by additional local sourcing of inputs.

#### *Policies for further processing*

Many countries attempt to influence mining companies with a view to increasing downstream processing. Various methods have been used, from soliciting relatively vague commitments by investors to give such possibilities careful consideration to imposing export taxes on unprocessed products or even establishing outright bans on such exports. The idea underlying export taxes and bans is that policies encouraging downstream processing can improve trade performance and speed up the structural transformation of the economy. It is often also claimed that these policies favor employment.

However, in practice some mining companies probably have good reasons not to process raw materials into processed products. If companies are not already doing it on their own initiative, they may consider the associated risks too high or the investment insufficiently profitable, for instance, where the costs of local inputs such as energy are too high, there is no scope for economies of scale, or the location of such downstream processing facilities would be too far from consumers.

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<sup>243</sup> Esteves, Ogorodnikova, Putz, and Coyne, 2013, op. cit.

It is, of course, possible that the cost to the mining company may be offset by benefits accruing to the rest of society, for instance, in terms of economic diversification and an improved skills base. Export taxes or bans based on an analysis showing that the benefits outweigh the costs might thus be justified. It is, however, very rare that such analyses are carried out in order to establish a strong economic case for the introduction of export taxes.<sup>244</sup> Instead, export taxes on unprocessed materials are introduced “on trust,” resulting in either reduced production of the raw material or the establishment of processing facilities that exist primarily because the export tax pushes down the price of the raw material sufficiently that the processors can cover their costs.<sup>245</sup> Such processing facilities that depend on the continuation of the tax for their survival clearly lead a fragile existence. Moreover, since mineral processing is usually even more capital intensive than mining, the employment generated is often negligible.

### *Policies promoting local economic development*

Induced employment, which results from mine employees spending their wages, is often much more important in terms of job creation numbers than either the direct (on the mine site) or indirect (in the supply chain) employment created by a mining project.<sup>246</sup> This employment is often important also from the point of view of poverty reduction, because it generates jobs in the informal sector and for those who would otherwise not be employed—for instance, household employees. Induced employment is usually also strongly concentrated in spatial terms, with most of it occurring very close to the mine site, where mine employees spend their income. This means that induced employment adds to the possibility of building a diversified local economy around mining. Increased demand for the output of service sectors and agriculture provides employment opportunities for those who do not secure a job in mining, including women and less skilled individuals. While these effects are local, the local area may be quite large in terms of population. For example, the province of Katanga in the Democratic Republic of Congo, which is building an economy based on mining and

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<sup>244</sup> According to an analysis of the effects of the recently introduced export taxes on unprocessed minerals in Indonesia, large welfare losses, on the order of US\$ 33 to 34 billion cumulative net value over six years, can be expected, due to the loss of income from raw materials exports and high processing costs. While all such calculations are based on assumptions, and the reality can only be assessed *ex post*, the basic argument will commonly hold true: obliging companies to embark on commercial operations that they would otherwise not undertake can involve a (potentially large) opportunity cost for the country. (USAID, “Economic Effects of Indonesia’s Mineral-Processing Requirements for Export,” produced by Nathan Associates Inc. (April 2013))

<sup>245</sup> OPM, “Sustainable Mining: How good practices in the mining sector contribute to more and better jobs,” Report to ILO (2013).

<sup>246</sup> See Östensson, 2014, *op. cit.*

where most livelihoods are touched by the development of mines, has 6 million people and is the most prosperous part of the country.

Particularly important in this regard is to exploit opportunities to strengthen linkages between different sectors. Most obviously, the increase in local food demand and the improvement in road transport that usually accompany mining provide opportunities for local farmers to increase their output, reduce marketing costs, and mobilize revenue for investment in inputs and equipment. Less obviously, but almost equally important, is the stimulus to the demand for services, including health care, transport, and business and financial services that accompany a growing ability to pay. The availability of such services improves the environment for small businesses.

Despite the opportunities for building viable local economies around mining through leveraging induced employment, national governments sometimes prefer focusing on industrial policies, such as raising local (which often means national rather than local) content and downstream processing. Indeed, the mineral policies of most countries fail to include the objective of local economic diversification. Lack of certainty with respect to the duration of mining may be one factor—if the mine is only going to operate for ten years, is it worthwhile to invest in social infrastructure? The fact that mines often operate much longer than initially planned may be of little help to the government when trying to decide where to allocate scarce resources. In addition, there is often no established procedure for formulating rural development policies specifically for mining communities. In the absence of a policy manual, national governments may prioritize “easier” policies, such as local content.

Local governments, which experience the problems and also see the opportunities of mining investments close at hand, are usually much more aware of the possibilities tied to local economic development. They generally have little influence on policy, however, and have scarce financial resources to implement any supportive policies on their own.

In spite of these obstacles, there are several ways that governments, investors, and other stakeholders can encourage and promote local economic development linked to mining investments.

The first is to support local governments in developing capacity to plan for rapid and diversified economic development, as well as to deliver the public services that are both needed by citizens and required for economic growth. Sharing mineral revenues, while not the most efficient way of creating employment, may help local authorities respond to the demand of a growing and wealthier population. Efforts by donors and by civil society organizations can also be important in this context.

Second, investment in infrastructure is important to allow sectors other than mining to grow. Mining often brings considerable improvements in infrastructure, but specific and supplementary governmental measures may be needed to ensure that non-mine users also benefit from such infrastructure. For instance, while a mining company may build a paved road to the nearest port, secondary feeder roads may also be needed to allow farmers to bring their produce to markets. Similarly, although a mining company may be able to operate while using banking services only in the capital, local entrepreneurs need banks that can handle small business loans. Accordingly, support to infrastructure investment, either in the form of government funding or investors' corporate social responsibility (CSR) projects, is crucial. The mining company may be willing to include road building in its CSR programs and can use its bargaining position with service providers such as banks to persuade them to offer services that are useful to the local population. Cooperation between mining companies and the government, including at the local level, can also prove beneficial.

Third, consultation mechanisms to underpin local development planning are needed. The provision of local services and infrastructure investment must be coordinated with mining company investment plans to ensure coherent development. Consultation is also necessary to avoid the exclusion of politically marginalized groups. An important element of this process is to manage expectations, which is the subject of the next section.

## Managing expectations

As in most human endeavors, there are often large differences between expectations and reality when it comes to investment and job creation. It appears that failed expectations with respect to job openings for local residents are usually the most important source of dissatisfaction and conflict between mining companies and local communities.<sup>247</sup> Mining companies are often perceived, sometimes probably rightly so, as making inflated promises about future jobs and later not living up to their promises.

In this context, it is critical for the government and the mining company to manage expectations. This becomes a pre-condition to establishing a sound and depoliticized debate around the challenge of optimizing large-scale investment for employment and livelihoods. This is particularly critical given the risks of commodity price downturns. Box 6 explores the consequences of the 2014-2015 decline in commodity prices on job

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<sup>247</sup> See, for instance, Angel Mondoloka, 2014, *op. cit.*, for a description of experiences from several mining communities in Zambia.

creation, and highlights some strategies that companies, often in partnership with governments and communities, have adopted to weather the downturn.

#### **Box 6 – Employment impacts of a mineral commodity price downturn**

The world recession and credit crunch of the second half of 2008 caused the prices of most commodities to fall drastically. Prices rose again in late 2009 to mid-2011; for most minerals and metals, they remained at historically high levels until 2014, when they collapsed following the decline in Chinese demand growth.

This downturn has obligated mining companies to review their business strategies and to contemplate laying off workers or even closing down their least profitable operations. For instance, Anglo American Platinum is actively considering exiting joint ventures that operate two Platinum mines in South Africa, Pandora and Bokoni; the restructuring plans at Bokoni is expected to result in a cut of 2,500 employees and many contractor job losses.<sup>248</sup> Also in South Africa, gold producer Lonmin PLC has announced a cut of 6,000 workers.<sup>249</sup> In Chile, the state-owned mining company Codelco has laid off more than 4,000 employees over the last eighteen months.<sup>250</sup> Copper-rich Zambia is similarly suffering from job losses, with Chinese-owned Luanshya Copper Mines suspending operations, turning some 1,600 workers jobless, and Vedanta Resources Plc doing the same regarding 133 employees at its Konkola Copper Mines (KCM).<sup>251</sup> Glencore, which is Zambia's largest private sector employer, with a direct workforce of 10,000 and an estimated 10,000 others employed by mining contractors, has suspended all production at its Mopani mine for 18 months, resulting in an estimated loss of 4,000 direct jobs alone.<sup>252</sup> It has suspended most of its production

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<sup>248</sup> Alexandra Wexler, "Anglo American Job Cuts Strike at Core of South Africa's Mining Industry," *The Wall Street Journal*, December 15, 2015, available at: <http://www.wsj.com/articles/anglo-american-job-cuts-strike-at-core-of-south-africas-mining-industry-1450174147> (last visited July 14, 2016).

<sup>249</sup> Scott Patterson and John W. Miller, "Mining Companies Slash Jobs as Commodities Prices Slide," *The Wall Street Journal*, July 24, 2015, available at: <http://www.wsj.com/articles/miners-shed-thousands-of-jobs-as-commodities-prices-slide-1437740084> (last visited July 14, 2016).

<sup>250</sup> Cecilia Jamasmie, "Codelco eyes \$600 million in savings, more job cuts in 2016 as copper in the pits," available at: <http://www.mining.com/codelco-eyes-600-million-in-savings-more-job-cuts-in-2016-as-copper-in-the-pits/> (last visited July 14, 2016).

<sup>251</sup> "Zambia govt to meet mining firms over looming job cuts: minister," *Reuters* September 26, 2015, available at: <http://www.timeslive.co.za/africa/2015/09/26/Zambia-govt-to-meet-mining-firms-over-looming-job-cuts-minister> (last visited July 14, 2016).

<sup>252</sup> Sibongile Khumalo, "Africa mining stumbles, raising fears of job loss chaos," *AFP*, September 13, 2015, available at: <http://news.yahoo.com/africa-mining-stumbles-raising-fears-job-loss-chaos-041718196.html> (last visited July 14, 2016).

in the DRC as well.<sup>253</sup> The consequences of the price downturn also affect developed economies. For instance, BHP Billiton has suppressed hundreds of jobs at its giant copper, gold, and uranium Olympic mine in South Australia.<sup>254</sup>

Mining job loss is generally inevitable in the face of such a severe downturn, highlighting the risk of heavy reliance on a single industry. Yet some companies cognizant of the implications of cyclical commodity markets have established initiatives to help mitigate the impact on communities and provide “a buffer during downturns.”<sup>255</sup>

For instance, the Rossing Foundation in Namibia,<sup>256</sup> which was established 36 years ago by Rossing Uranium in partnership with government ministries, continues to focus on education and SME development. Another example comes from the experience of Xtrata corporation in Chile, which set up a fund financed by a percentage of profits during more profitable years and dedicated to continuing the company’s investment in the community during leaner periods, which could include providing training on transferable skills to other economic sectors or limiting job cuts. Similarly, at its operations in Australia’s New South Wales, Rio Tinto is involved in community funds managed by community, company, and local government representatives; it is currently deploying a similar scheme at its Heavy Mineral Sands operations in Richards Bay, South Africa. Other companies in the Bowen Coal basin in Australia have decided to join forces to continue making funds available to mitigate the impact of the downturn on communities’ livelihoods.<sup>257</sup>

Failures of communication are often an important cause of conflicts concerning employment outcomes. Investors may believe that they have been doing useful things and are perplexed by hostile reactions from local populations, which in turn may be

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<sup>253</sup> Andy Hoffman and Matthew Hill, “Glencore to Invest \$950 Million Upgrading Zambia Copper Mine,” Bloomberg, October 28, 2015, available at: <http://www.bloomberg.com/news/articles/2015-10-28/glencore-to-invest-950-million-upgrading-zambia-copper-mines> (last visited July 14, 2016); Matthew Hill and Andy Hoffman, “Glencore Crisis Hurts Most Those Who Have the Least,” Bloomberg, October 29, 2015, available at: <http://www.bloomberg.com/news/articles/2015-10-30/glencore-copper-mine-shutdown-to-hurt-zambia-economy>; <http://news.yahoo.com/africa-mining-stumbles-raising-fears-job-loss-chaos-041718196.html> (last visited July 14, 2016).

<sup>254</sup> Scott Patterson and John W. Miller, “Mining Companies Slash Jobs as Commodities Prices Slide,” The Wall Street Journal, July 24, 2015, available at: <http://www.wsj.com/articles/miners-shed-thousands-of-jobs-as-commodities-prices-slide-1437740084> (last visited July 14, 2016).

<sup>255</sup> Saleem Ali, “How should mining companies invest in social capital during economic downturns?,” *National Geographic*, October 14, 2015, available at: <http://voices.nationalgeographic.com/2015/10/14/mining-downturns/> (last visited July 14, 2016).

<sup>256</sup> The Rossing Foundation, available at: <http://www.rossingfoundation.com/> (last visited July 14, 2016).

<sup>257</sup> Ali, 2015, op. cit.

unaware of employment creating projects or upset that such projects fail because investors are ignorant of local conditions.<sup>258</sup> While conflicts over employment outcomes will never be wholly eliminated, their number and seriousness can be considerably reduced if a few simple rules are followed:

- Investors should never attempt to sugarcoat facts and should be conservative when communicating estimates of employment.
- Investors should tailor the way information is presented to the specific stakeholder and to the specific situation. In addition to asking themselves what they want to communicate, they should ask what the audience is interested in knowing and how best to communicate that information.
- Investors should make particular efforts to communicate clear answers to the questions *When do the jobs come?*, *Who will get the jobs?*, *Where will the jobs be?* and *What type of jobs will they be?*
- Investors should prepare their training programs in consultation with local authorities and communities to ensure that they respond to the needs and skills of the local population.
- Governments, both national and local, should analyze and clarify local needs and conditions to investors, and should adapt local development planning to include realistic estimates of future net employment and net livelihood impacts of investments.

#### 4.2 Maximizing the impact of agricultural investment for sustainable development: support for “jobs” and support for livelihoods

As mentioned in Section 3, government policymakers seeking employment benefits from investment in agriculture should fully assess the job creation estimates attached to potential investments, including the quality of jobs created and the potential net livelihood impacts based on the specific *ex ante* situation in the concession area. Such an assessment may not be easy. Investors seeking to receive concessions may have an incentive to inflate their job estimates, while government agencies tasked with attracting investment may not have an incentive to dig too deeply into the numbers presented.

Yet more critical assessments are important. To this end, government policymakers evaluating potential agricultural investments should require that any job estimates provided by the company are supplemented with additional information: for example, an explanation of how the estimates were calculated, a description of the types of jobs

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<sup>258</sup> Mondoloka, 2014, op. cit. cites several examples.

anticipated (permanent, seasonal, managerial, etcetera), and evidence showing similar employment numbers generated through comparable projects. Policymakers should also consider the investment model proposed, and the viability of such a model in the local context. Because the number of livelihoods negatively affected may be greater than the number of waged jobs created in places where a land-based investment results in high levels of resource displacement, in some situations governments may find that other options, such as different types of investment models, may be more appropriate avenues for meeting their goals of generating employment and improving livelihood impacts.

Indeed, large-scale agricultural investments are only one of many approaches for investment in agriculture, and the type of agricultural investment model used may affect its impact on employment, livelihoods, or poverty reduction. Other options for public or private investment include investing in smallholder production, or investing in “inclusive business models” that incorporate smallholder farmers, such as through contract farming arrangements or outgrower schemes. In some cases, such investments—for example, nucleus estates that include both a central plantation and outgrower arrangements through which the operator purchases crops for processing—can be viewed as specialized methods of local procurement. These inclusive business models are not without their own sets of potential drawbacks, and must be structured equitably and with sufficient safeguards—including potentially through the careful development and implementation of government policies—to ensure that benefits are shared. In some contexts, such models may also require support from third parties. Yet they often hold the potential to support greater numbers of livelihoods than agricultural projects that simply rely on waged labor in combination with mechanized operations.

For example, investments in outgrower schemes may produce lower numbers of direct waged jobs, since much of the expected production comes from smallholder farmers rather than from waged laborers. However, depending on how they are structured, such investments could potentially support more labor overall while displacing fewer people, thus altering the net livelihoods calculation. Indeed, in the World Bank and UNCTAD review of 39 agribusiness investments, discussed above, the projects that included outgrower schemes supported many more livelihoods than the number of total direct jobs created through land-based investments: while the 39 projects directly employed around 40,000 people in total, the 11 projects that included outgrower schemes also engaged nearly 150,000 contract farmers.<sup>259</sup> As the report notes, “[o]utgrower schemes can be effective in supporting livelihoods while allowing people to retain their most valuable asset -- their land. Governments should consider which

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<sup>259</sup> World Bank and UNCTAD, “The Practice of Responsible Investment Principles in Larger Scale Agricultural Investments: Implications for Corporate Performance and Impact on Local Communities,” Table E.1 and Table E.2.



investors and business models are likely to maximise direct and indirect employment as these are key benefits of agricultural investment.”<sup>260</sup>

The relevance of such schemes for employment and livelihood outcomes is particularly important to keep in mind given the tendency of some governments and stakeholders to count only waged labor in job estimates. From that perspective, plantation investments with relatively large numbers of waged jobs but even higher levels of livelihood displacement might be seen as preferable to outgrower schemes with relatively few waged jobs but greater livelihood support, even when the “net livelihood impact” –or what we would consider the net employment impact, given our more expansive definition of “employment” –is negative in the former and positive in the latter.

Aside from the numbers of direct jobs created, it is conceivable that, in general, investments that distribute the benefits more widely, rather than those that lead to increased land concentration, may have greater multiplier effects and thus higher induced employment numbers. For example, researchers have pointed out that “broad-based agricultural growth tends to generate greater second-round expenditures in support of local goods and services in rural areas and towns. These multiplier effects are much weaker when the source of agricultural growth is concentrated in relatively few hands.”<sup>261</sup>

This section briefly reviews the different policies that governments may implement to try to improve the employment generation of large-scale agricultural investment. As with mining investments, governments have a range of policy options to try to augment the local job creation potential of agricultural investment, including through “local content” policies targeting direct employment, linkages, and local processing, as well as policies geared towards supporting wider local economic development.

### *Policies targeting direct employment of local workers*

Governments seeking to increase the employment opportunities generated by agricultural investments may want to consider the types of crops that investors are encouraged to grow, as well as their intended method of production. As noted in section 1, crops have varying labor requirements, while the level of mechanization also affects the number of jobs are generated. Although employment is only one of multiple factors with which host governments may be concerned in respect of agricultural

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<sup>260</sup> World Bank and UNCTAD, op. cit., p. 49.

<sup>261</sup> T.S. Jayne, A. Chapoto, C. Nkonde, J. Chamberlin, and M. Muyanga, N. Sitko, “Is the Scramble for Land in Africa Foreclosing a Smallholder Agricultural Expansion Strategy?” (2013), p. 22.

investment, to the extent that governments wish to maximize employment from such investment, they may want to promote crops that provide more jobs.<sup>262</sup> Similarly, if governments are more interested in agricultural investment that allows small-scale farmers to earn seasonal wages while maintaining their own crops, the type of crop will also be relevant, as noted in Box 7.

**Box 7: Supplementing smallholder farming with seasonal or temporary labor through investments**

Whether smallholder farming can be supplemented with seasonal waged labor on plantations (or with temporary jobs in mining) depends on multiple factors. In respect of waged labor on plantations, for example, it will depend in part on which crops are grown on the plantation and by the smallholder. When the crops have similar harvest seasons, reconciling both types of work might be difficult. When the plantation work has distinct seasons that are not in conflict with the smallholder's production cycle, these dual strategies might work better. Oil-palm crops, for example, "require most of their labour at peak times," enabling farmers to receive seasonal wages and also grow their own crops.<sup>263</sup>

Regardless of the type of crop grown, the direct jobs generated by agricultural investment are not always allocated to local community members, as described in section 2. This may be the case even though host governments generally have an interest in ensuring that "locals"—either from the nearby community members, or others within the country—benefit from the jobs created from an investment, given that, for governments, one primary attraction of agricultural investments is the potential for job creation.

Similar to the approach with mining investments, some governments thus create employment targets to prompt investors to employ national or local workers. These seek to ensure that, within the total direct employment, a certain number or percentage of positions is filled by local workers. Governments may couple these targets with training programs to reduce the skills gap and facilitate the hiring of local workers for managerial positions.<sup>264</sup>

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<sup>262</sup> World Bank, 2011, op. cit.

<sup>263</sup> Smalley, 2013, op. cit., p. 42.

<sup>264</sup> See, e.g., UNCTAD and World Bank, "The Practice of Responsible Investment Principles in Larger-Scale Agricultural Investments: Implications for Corporate Performance and Impact on Local Communities," Agriculture

Governments may establish targets or require training programs in multiple ways, including through agreements incorporated into investment contracts. For example, the government of Liberia has frequently included sections on employment practices in its large-scale agriculture and forestry contracts, which often state that preference will be given to qualified Liberian citizens for skilled positions, and that senior management positions should include a certain percentage of Liberian citizens after a certain number of years.<sup>265</sup> These contracts sometimes require the investor to provide training to nationals of the host state in order to help them qualify for more skilled positions.<sup>266</sup> Some investment contracts also include explicit requirements to hire national citizens for some or all of the unskilled positions created by an investment.<sup>267</sup>

Yet local hiring requirements are not always implemented or enforced,<sup>268</sup> and governments must think critically about the monitoring and enforcement systems that are necessary to ensure that investors adhere to their commitments. Furthermore, as noted in section 2, even when local workers are offered jobs, the benefits are not always distributed equally within a community, with more highly skilled and educated workers at an advantage, even for low-skilled positions. There are obvious reasons why an employer would favor such workers when provided the choice, and this raises the question of whether there is more that governments can do to assist their least advantaged citizens in benefiting from new job opportunities. One possibility could be

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and Environmental Services Discussion Paper 08 (2014). See also examples of contracts from Liberia, which require the provision of training by investors.

<sup>265</sup> For example, the LIBINC Oil Palm Inc. contract states that the investor will hire Liberian citizens for at least 50% of the ten most senior management positions within 5 years after the contract comes into force, and at least 75% within 10 years. Ministry of Foreign Affairs Monrovia, Liberia, An Act Ratifying the Concession Agreement Between the Republic of Liberia and LIBINC Oil Palm Inc., (May 22, 2008), Art. 9., available at: <https://www.scribd.com/document/151738375/An-Act-to-Ratify-Concession-Agreement-Between-the-Republic-of-Liberia-and-LIBINC-Oil-Palm-Inc> (last visited July 15, 2016).

<sup>266</sup> See, for example, the contract between Golden Veroleum and Liberia (Art. 12.2 requiring “reasonable efforts to provide training” in order to qualify Liberians for such jobs). Ministry of Foreign Affairs Monrovia, Liberia, An Act to Ratify the Concession Agreement Between the Republic of Liberia and Golden Veroleum (Liberia) Inc., (September 1, 2010), Art. 12.2, available at: <https://www.scribd.com/document/152067402/An-Act-to-Ratify-The-Concession-Agreement-Between-The-Republic-of-Liberia-and-Golden-Veroleum-Liberia-Inc-September-1-2010> (last visited July 15, 2016).

<sup>267</sup> See e.g. Golden Veroleum contract Art. 12.1(a) (“In no case unless agreed in writing shall Investor knowingly (after reasonable inquiry) hire non-Liberian nationals for unskilled labor positions.”), Firestone Art. 11.1 (“In no case shall Firestone Liberia hire non-Liberian citizens for unskilled labor positions.”). Ministry of Foreign Affairs Monrovia, Liberia, An Act to Ratify the Concession Agreement Between the Republic of Liberia and Golden Veroleum (Liberia) Inc., op. cit., Art. 12.1(a); An Act Ratifying the Amended and Restated Concession Agreement Between the Republic of Liberia and Firestone Liberia, Inc., (March 31, 2008), Art. 11.1, available at: <https://www.scribd.com/document/152423546/An-Act-Ratifying-the-Amended-and-Restated-Concession-Agreement-between-the-Republic-of-Liberia-and-Firestone-Liberia-Inc> (last visited July 15, 2016).

<sup>268</sup> Smalley, 2013, op. cit. (“It appears that companies are increasingly pledging to recruit at least a proportion of their workforce locally as part of deal negotiations, although they do not always honour this (Hall et al. 2011; Schoneveld et al. 2011).”)

the expansion of educational or training programs provided either by investors or jointly by investors and the government that could assist a broader set of community members in attaining even low-skilled positions, rather than programs focused only on managerial positions. Yet governments could also think creatively about other ways to spread job benefits more widely, including quotas for members of groups that may otherwise be at a disadvantage.

### *Policies targeting linkages and additional employment*

Agricultural investments that are designed to generate backward linkages, including through outgrower schemes that supply products for processing, or downstream employment, for example through packing or processing, provide another avenue for generating additional direct or indirect employment. The usefulness of such an approach is highlighted by the Principles for Responsible Investment in Agriculture and Food Systems (rai), which were adopted by the Committee on World Food Security in October 2014 and note that responsible agricultural investment includes “fostering entrepreneurship and equal access to market opportunities both on-farm and for upstream and downstream stakeholders.”<sup>269</sup>

As highlighted above, outgrower schemes generate indirect employment and can greatly increase livelihood support, by linking smallholder farmers with investors who serve as buyers of the smallholders’ products. Some outgrower schemes also support agricultural development more generally, by providing smallholders with technical assistance and credit that promotes better farming practices generally. Schemes that support smallholders rather than or in addition to waged employment could also potentially increase induced employment, given that smallholders’ income is often significantly greater than that of waged farm laborers.<sup>270</sup> Governments can design policies that encourage investors to implement such arrangements. While promoting inclusive business models over a land acquisition model will often have better

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<sup>269</sup> Committee on World Food Security, “Principles for Responsible Investment in Agriculture and Food Systems,” (2014), Principal 2 (para. 22(iv)), available at: [http://www.fao.org/fileadmin/templates/cfs/Docs1314/rai/CFS\\_Principles\\_Oct\\_2014\\_EN.pdf](http://www.fao.org/fileadmin/templates/cfs/Docs1314/rai/CFS_Principles_Oct_2014_EN.pdf) (last visited July 15, 2016). Similarly, the Principles for Responsible Agricultural Investment that Respects Rights, Livelihoods and Resources (PRAI), developed by the FAO, IFAD, UNCTAD and the World Bank Group (January 2010), note that governments should help address food security concerns linked to agricultural investments in part “by generating downstream employment in packing sheds, processing operations, or ancillary services such as handling, transport or marketing.” FAO, IFAD, UNCTAD, and the World Bank Group, “Principles for Responsible Agricultural Investment the Respects Rights, Livelihoods and Resources, (January 25, 2010), available at: [http://siteresources.worldbank.org/INTARD/214574-1111138388661/22453321/Principles\\_Extended.pdf](http://siteresources.worldbank.org/INTARD/214574-1111138388661/22453321/Principles_Extended.pdf) (last visited July 15, 2016).

<sup>270</sup> The World Bank, 2011, op. cit., p. 35.

development outcomes and can help minimize negative livelihood impacts on communities affected by investments,<sup>271</sup> policies intended to promote the integration of smallholders can also be established for investments that are not, at their core, an inclusive business model. For example, incentives to incorporate outgrower schemes into large-scale land-based investments may include the ability to acquire additional amounts of land upon implementation of an outgrower scheme,<sup>272</sup> or the automatic extension of the duration of a contract if outgrower obligations are met.<sup>273</sup>

Outgrower schemes and other inclusive business models are only as good as their structure and implementation, and governments interested in promoting such models should take care to establish appropriate safeguards. This includes ensuring that smallholder farmer participation is voluntary, that smallholders are able to negotiate equitable arrangements, and that such schemes are not used to unreasonably shift risks away from the investor onto the smallholder participants.<sup>274</sup>

Moreover, policies to promote outgrower schemes or other backward linkages should be gender-sensitive. In some cases, women may be particularly vulnerable to the arrival of contract farming or outgrower arrangements. For example, the arrival of horticulture contracting schemes in Kenya led some men to shift land use away from household production controlled by women, thereby reducing their access to resources and independence.<sup>275</sup> In addition, because contract farming or outgrower schemes are often signed with male heads of household, the arrangements can disempower women, even if they provide the bulk of the labor under the contract.<sup>276</sup> Conversely, policies that

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<sup>271</sup> See, e.g., De Schutter, *Principles on Large-Scale Land Acquisitions*, Recommendation 4: “arrangements under which the foreign investor provides access to credit and to improved technologies for contract farming, or against the possibility to buy at predefined prices a portion of the crops produced, may be preferable to long-term leases of land or land purchases.” Olivier De Schutter, “Large-scale land acquisitions and leases: A set of core principles and measures to address the human rights challenge,” (June 11, 2009), p. 14.

<sup>272</sup> See for example LIBINC contract, Ministry of Foreign Affairs Monrovia, Liberia, *An Act Ratifying the Concession Agreement Between the Republic of Liberia and LIBINC Oil Palm Inc.*, 2008, op. cit., Section 12(3).

<sup>273</sup> See for example Maryland contract, *Concession Agreement Between the Republic of Liberia and Maryland Oil Palm Plantation (Liberia) Inc.*, (March 3, 2011), Section 3(2), available at: <http://www.documentcloud.org/documents/1086844-maryland-oil-palm-plantation.html#document/p15/a148912> (last visited July 15, 2016).

<sup>274</sup> For more information about inclusive business models, see UN, “The right to food,” Doc A/66/262, available at: [http://www.srfood.org/images/stories/pdf/officialreports/srrtf\\_contractfarming\\_a-66-262.pdf](http://www.srfood.org/images/stories/pdf/officialreports/srrtf_contractfarming_a-66-262.pdf) (last visited July 15, 2016).

<sup>275</sup> Philip English, Steven Jaffee and Julius Okello, “Exporting Out of Africa – Kenya’s Horticulture Success Story,” World Bank, (2004), p. 15, available at: <http://info.worldbank.org/etools/docs/reducingpoverty/case/120/fullcase/Kenya%20Horticulture%20Full%20Case.pdf> (last visited July 15, 2016); see also Maertens and Swinnen, 2009, op. cit. (through case studies in Senegal, finding that “women benefit more and more directly from large-scale estate production and agro-industrial processing, and the creation of employment in these modern agro-industries than from high-value smallholder contract-farming”).

<sup>276</sup> Charles Eaton and Andrew W. Shepherd, “Contract Farming: Partnerships for growth, *FAO Agricultural Services Bulletin* 145 (2001), pp. 102-103.

encourage gender-sensitive approaches can help mitigate the potential negative impacts on women. For example, government policies encouraging women to form cooperatives in Rwanda has helped strengthen their ability to engage in outgrower schemes, even if such schemes have had variable outcomes.<sup>277</sup> Undertaking concurrent policies to strengthen women's access to resources can help improve their opportunities to benefit from any policies that promote outgrower schemes or other linkages.<sup>278</sup>

Aside from outgrower schemes or similar models, governments can implement other local procurement policies that urge investors to source goods or services needed for production, in order to increase the indirect and induced employment generation potential of investments. Similar to the above discussion regarding mining-related policies, governments may be somewhat constrained in their local content policies by WTO rules, which except least developed countries until 2020. Yet, at a minimum, governments can encourage investors to give preference to local goods and services—although what constitutes “local” can also be debatable—and abstain from granting investors the right to import inputs duty free where these goods are available locally.

In addition, governments sometimes enact policies to encourage local processing of agricultural products. Just as with mining, governments may undertake a range of efforts to promote further processing, from simple suggestions incorporated into contracts that urge investors to consider further processing<sup>279</sup> to, at the other end of the spectrum, regulations banning exports of certain types of raw products. While increased local processing of products—particularly non-bulk commodities—should create more employment opportunities in general, as noted in Section 1, extremely restrictive regulations that are not complemented by targeted policies can have unintended consequences that limit the potential benefits of requiring more local processing.

In Mozambique, for example, the government enacted an export ban on non-processed first-class timber (i.e., in the form of logs) in “an attempt to generate greater domestic value-added and employment through local processing of roundwood.”<sup>280</sup> Yet a confluence of factors—including the dominance of Chinese buyers who strongly prefer logs to sawn timber—has meant that the local processing requirements in Mozambique

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<sup>277</sup> Daley and Pallas, 2013, op. cit., pp. 10-11.

<sup>278</sup> Daley and Pallas, 2013, op. cit., pp. 17-19, including citing Clancy (2008).

<sup>279</sup> See, for example, LIBINC Oil Palm Inc. contract with Liberia, which states that the investor shall “explore the possibility of establishing manufacturing and/or processing facilities ... within Liberia.” Ministry of Foreign Affairs Monrovia, Liberia, An Act Ratifying the Concession Agreement Between the Republic of Liberia and LIBINC Oil Palm Inc., 2008, op. cit., Art. 11.1.

<sup>280</sup> Sigrid-Marianella Stensrud Ekman, Huang Wenbin and Ercilio Langa, “Chinese trade and investment in the Mozambican timber industry: A case study from Cabo Delgado Province,” CIFOR Working Paper 122 (2013), available at: [http://www.cifor.org/publications/pdf\\_files/WPapers/WP122Ekman.pdf](http://www.cifor.org/publications/pdf_files/WPapers/WP122Ekman.pdf) (last visited July 15, 2016).

have rendered Mozambican timber less valuable to the primary buyers. Researchers have argued that, while the impact on processing is “debatable,” its overall negative impact has increased expenses for Mozambican timber companies, while incentivizing illegal exports that consequently deprive the government of revenue. Although fully lifting the ban might not augment job creation, doing so could decrease the amount of illegal logging, with positive benefits for both government revenue and the environment. Alternatively, to the extent that the government wants to continue the ban in order to generate more jobs through further processing, it could undertake supplementary policies that support processors in supplying processed timber that is more valuable to Chinese buyers, or that increase exports of sawn logs to non-Chinese markets.<sup>281</sup>

### *Policies promoting local economic development*

In addition to undertaking policies that target direct employment and those targeting linkages and indirect and induced employment, host governments can also consider policies that promote local economic development linked to agricultural investments. As with the mining-related policies discussed above, such development policies can have employment and livelihood impacts by supporting increased economic activities in the local/proximate economy surrounding the investment.

Perhaps most relevant are policies related to infrastructure. Like job creation, infrastructure development tied to investment is often heralded as a primary benefit of large-scale agricultural investment.<sup>282</sup> Such infrastructure can include, for example, roads, irrigation, trading centers, and agro-processing facilities. Yet, in contrast to infrastructure linked to mining investments,<sup>283</sup> it is less common to find examples of large-scale agricultural investors financing and building shared-use road, power, or water infrastructure. In some contexts, host governments have negotiated agreements under which investors must share any infrastructure, such as roadways or waterways, that they have developed outside of the concession area,<sup>284</sup> although such shared-use may be limited to use of excess capacity that does not unreasonably interfere with the investors’ operations.<sup>285</sup> Although such caveats can be easy to manipulate, the general

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<sup>281</sup> Ekman, Wenbin and Langa, 2013, op. cit.

<sup>282</sup> See, e.g., Cotula, Vermeulen, Leonard, and Keeley, 2009, op. cit., pp. 58, 81-83.

<sup>283</sup> For an overview of the issue and examples see CCSI’s research available at <http://ccsi.columbia.edu/work/projects/leveraging-infrastructure-investments-for-development/>.

<sup>284</sup> Some of the Liberian agricultural contracts include such provisions. See, e.g., Golden Veroleum, 4.4(b); LIBINC Oil Palm Inc., 3.3(a)(ii).

<sup>285</sup> For example, the Golden Veroleum contract also notes that if the investor builds a new port, the government may authorize third-party use of excess capacity so long as it “does not unreasonably interfere with the efficient and

approach of making infrastructure publicly available and non-exclusionary can help promote economic development in areas near large-scale investments. Indeed, greater access to roads, irrigation, or other infrastructure can benefit local farmers and other stakeholders, by, for example, raising their own productivity or facilitating easier access to markets. To the extent that host governments can encourage investors to build shared-use infrastructure, or can require investors to share any infrastructure that they do build,<sup>286</sup> this can have useful consequences for local economic development.<sup>287</sup>

In respect of agricultural investments and shared-use infrastructure, a more common approach that governments have taken is to try to leverage agricultural investment and investor demand to enter into public-private partnerships for infrastructure development, or to gain third-party support from donors, multilateral institutions, or financing groups for infrastructure funding.<sup>288</sup> Public-private partnerships, including those benefiting from public service financing, can raise concerns, however, when the infrastructure may be exclusionary or beneficial for only a small percentage of the public.<sup>289</sup> Third-party financing also relies, of course, on the willingness of donors to provide such support, and must be undertaken carefully to ensure sustainability once donor funding has concluded. Thus, while host governments can seek infrastructure development through leveraging investor interest, such arrangements should be carefully designed and regulated to ensure that they are beneficial for local economic development as well as financially sustainable.

Explicitly designating infrastructure as “shared-use” is not always necessary, however: for some crops, the establishment of processing infrastructure by an investor may be enough to stimulate and support local production, even outside of any formal

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economic conduct of the Investor’s port operations.” 4.13(c). Ministry of Foreign Affairs Monrovia, Liberia, *An Act to Ratify the Concession Agreement Between the Republic of Liberia and Golden Veroleum (Liberia) Inc.*, 2010, op. cit.

<sup>286</sup> As the World Bank notes, “[w]here [public] investment [in infrastructure] is not available, private operators can to some extent substitute by establishing networks of their own. But proper regulation will be needed to prevent monopolistic abuse.” The World Bank, 2011, op. cit., p. 42. One example from an FAO publication illustrates this concern, describing road construction built by an investor in Cambodia “mainly for the company’s use and not for the public, who are not allowed to intrude on the company’s property.” FAO, “Trends and impacts of foreign investment in developing country agriculture,” 2013, op. cit., p. 185.

<sup>287</sup> A couple of caveats are in order. First, increased infrastructure in certain sensitive areas can lead to ecological damage, with, among other things, potential consequences for traditional livelihoods. For example, roads can contribute to deforestation, while irrigation infrastructure can impact water supply if not based on a sustainable water source. Second, if governments require shared-use infrastructure to be provided by the investor, the investor may seek to compensate for this when negotiating other aspects of the deal. Governments and local communities should thus be aware that requiring shared-use infrastructure may engender trade-offs.

<sup>288</sup> Several models exist, including when the infrastructure investment is anchored on the investor’s demand without the investor necessarily participating in the funding of the infrastructure.

<sup>289</sup> See, e.g., Michael Warner, David Kahan and Szilvia Lehel, “Market-oriented agricultural infrastructure: appraisal of public-private partnerships,” Food and Agriculture Organization of the United Nations (2008), p. xx, available at <http://ftp.fao.org/docrep/fao/011/i0465e/i0465e00.pdf> (last visited July 15, 2016).



requirement to share infrastructure or any formal agreement to work with or buy from smallholder farmers. Crops that must be milled soon after harvest—for example, oil palm or sugarcane—require adequate transportation and extraction infrastructure. Where an investor establishes such infrastructure for its own operations, this can also create opportunities for smallholder farmers to produce and sell such crops, even in the absence of formal agreements with the investor.<sup>290</sup> Investments that incorporate such infrastructure can thus generate livelihood benefits for smallholders, although such benefits are not without accompanying risks, including related to the monopsony power of mills, poor bargaining power of smallholders, and fluctuating commodity prices passed on to the farmer.<sup>291</sup> To this end, governments seeking to ensure better outcomes tied to new infrastructure can develop policies and programs that assist smallholders in managing these risks, such as improved pricing systems and greater negotiation and technical support to farmers.

In some contexts, additional government policies may also indirectly lead to the development of infrastructure linked to agricultural investments, even without the government requiring it directly of the investor. For example, some governments may require investors to negotiate agreements with affected communities. These community agreements, in turn, sometimes include an agreement by the investor to construct physical or social infrastructure. For example, the government of Liberia requires forestry, but not agricultural, investors to undertake such community agreements; these have led to the construction of roads and bridges, as well as social infrastructure such as schools.<sup>292</sup>

Aside from infrastructure policies, governments and other stakeholders can also encourage local economic development linked to agricultural investments in other ways. For example, just as with mining investments, discussed above, national governments and other stakeholders can support local governments in planning for economic development and in delivering necessary public services. Although overall revenues from agricultural investments are much less significant than those from mining investments, national governments can still explore revenue sharing with local governments, which can be used to further economic development efforts—or even

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<sup>290</sup> See, e.g., Stéphane Bernard and Jean-François Bissonnette, “Oil palm plantations in Sabah: Agricultural expansion for whom?” in De Koninck, Rodolphe, Stéphane Bernard, and Jean-François Bissonnette, eds. 2011, *Agricultural Expansion in Southeast Asia: Borneo at the eye of the storm*, National University of Singapore Press, p. 130 (explaining that “smallholders must be considered in many respects as an epiphenomenon of plantation and state scheme development, for they are dependent upon palm oil extraction and transportation infrastructures provided by powerful companies”).

<sup>291</sup> See, e.g., Sonja Vermeulen and Nathalie Goad, “Towards better practice in smallholder palm oil production,” IIED (2006), pp. 33-36.

<sup>292</sup> World Bank, 2011, op. cit., p. 107 (noting Liberia’s requirement of forestry investors).

infrastructure development.<sup>293</sup> Similarly, just as consultation mechanisms for local development planning are necessary when linked to mining investments, such mechanisms are also needed for development planning when linked to agricultural investments. Coordination between local governments and investors is useful, but consultation is crucial to ensure that planning supports local economic development that delivers real benefits for local communities.

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<sup>293</sup> See, for example, World Bank, 2011, *op. cit.*, p. 126 (explaining that the DRC's Forest Code enumerates how the government shares forestry taxes and fees; this includes "25 percent [of area fees] to the province and 15 percent to the local government, all to be used exclusively for basic infrastructure development.")

## Conclusion

The employment impacts of mining and large-scale agricultural investment can be considerable, particularly if indirect and induced employment is taken into account. The number of jobs directly and indirectly generated are contingent, however, on a range of factors. In mining, these factors include ownership, the size of the mine, the mining life cycle, technology, and the type of commodity being extracted. The recent drop in commodity prices also highlights the significance of macroeconomic factors for employment outcomes. In agriculture, factors relevant to the number of jobs created include types of crops, methods of production, specific project contexts, and links to agro-processing. And although agricultural investments have been less dramatically affected by changes in commodity prices, the relatively high project failure rates in recent agribusiness investments demonstrate the importance of project viability for sustainable employment impacts.

As described in this report, various elements complicate efforts to understand employment impacts. For one, the lack of a universally implemented standard for describing or measuring job creation, whether in absolute numbers or through multipliers, creates opportunities for obfuscation and obstacles for comparisons. In addition, estimating multiplier effects is complex, rendering employment estimates uncertain.

Moreover, analysis of the employment impact of large-scale mining and agricultural investment cannot stop at quantification. Policymakers and other stakeholders need to consider qualitative factors and additional nuances, such as the quality of jobs, including job security and wages; distributional impact and who benefits; and the net livelihood impacts of investments.

For example, large-scale mining projects that generate employment can also provide additional opportunities that support poverty alleviation. These include improvements in infrastructure and communication, which can lead to improved links to the national economy and greater access to public services; increases in purchasing power of those benefiting from new employment or business opportunities; and enhancement of the local skills base. When mining companies invest in local employment, through consultations with local communities, local hiring, and provision of training, as well as linkages with local services, businesses, and products, the employment and income impact for local populations tends to be positive.

However, the negative consequences of mining on livelihoods, including local price increases, crowding out of traditional livelihoods, and conflicts resulting from in-

migration, must also be considered when assessing a mine's impact on local job creation and living conditions of local communities.

The employment impacts of large-scale agricultural investment are similarly complex. Both host governments and investors often tout the waged-employment potential of such investment. Yet critics raise a number of concerns, particularly when such investment causes displacement and resettlement of previous land users, as is often the case in some countries. In assessing the employment impacts of a potential investment, policymakers should thus contrast the direct, indirect, and induced jobs expected to be created by such investment with the livelihood losses that may be associated with the investment. This will help them consider whether the "net livelihood impact" of an investment is indeed positive or negative. Additionally, because investment requiring the acquisition of large swathes of land is not the only option for agricultural investment, it is important for policymakers to carefully consider, for specific situations as well as more broadly, whether such a model is the best way to invest in agriculture. It often is not.

Against this backdrop, governments and companies should cooperate to design appropriate policies, plans, and strategies to strengthen positive employment (and other) impacts and mitigate negative ones associated with investment in mining or agriculture. Although some negative outcomes may be inevitable, such as environmental change, or resettlement in the context of mining projects,<sup>294</sup> governments and companies can seek to develop frameworks that minimize negative outcomes and safeguard rights, while maximizing employment opportunities, particularly for local communities. The expectations fueled by job creation estimates, and the reliance in certain areas on mining and agriculture projects to provide jobs, render such efforts particularly important.

In this regard, there are several avenues that governments in particular should explore.

*To maximize the creation of direct jobs tied to mining and agricultural investment:*

- 1) Governments should focus not only on potential revenues generated by an investment (particularly pertinent for mining projects), but also on whether policies are in place to maximize the direct, indirect, and induced job impact,

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<sup>294</sup> Although both types of investment cause displacement and resettlement, this is harder to avoid in the context of mining, which is more location-sensitive. Displacement and resettlement are arguably avoidable altogether for agricultural projects, which are generally less location-sensitive and which also can often occur without the transfer of land use rights.

including cost-effective policies to attract responsible investment that leads to increased employment.

- 2) In some countries, revenues from investment are shared between the national- and subnational-level governments. In those cases, it is important to support subnational-level governments in managing their share of revenues effectively, including through the implementation of policies that promote positive employment impacts.
- 3) Governments and companies should cooperate on training programs that support individuals' ability to benefit from the job opportunities offered by investment projects. Training programs can be coupled with agreed targets that encourage the employment of local or national workers.

*To maximize the creation of indirect jobs tied to mining and agricultural investment:*

- 4) Governments should take care that policies aimed at increasing linkages, either backward through local content requirements or forward through measures intended to increase further processing, are based on realistic assessments of the capabilities of local enterprises, are in conformity with relevant international rules, and do not lead to undue administrative burdens for either companies or regulators.
- 5) Governments should refrain from granting investors the right to import inputs duty free where such goods are available locally.

*To maximize the creation of induced jobs tied to mining and agricultural investment:*

- 6) National-level governments should support subnational-level governments in developing capacity to plan for diversified economic development, as well as to deliver the public services that are both needed by citizens and required for economic growth.
- 7) Governments should support or encourage infrastructure investment tied to mining or agricultural projects. Investment in shared-use infrastructure can help other sectors grow and/or support improved livelihood activities. For instance, while a mining company may build a paved road to the nearest port, the establishment of secondary feeder roads, perhaps supported by the company, can enable farmers to bring their produce to markets. Or when an agricultural investor constructs a processing facility, this may open up a new opportunity for smallholder farmers to sell products to the investor. Cooperation between companies and the government, including at the local level, can prove beneficial

in assessing the need, demand, and appropriateness of linked-infrastructure investment.

- 8) Governments and companies should ensure that appropriate consultation mechanisms underpin local development planning as needed. For example, a company's investment plans should be coordinated with local governments' plans to ensure coherent development. As discussed below, consultation and participation of local communities in local development planning is also important.

*To maximize all three types of employment impacts:*

- 9) Any job-creation policies selected by the government should be grounded in a sound strategy for consulting with communities. Such consultations can help ensure that community needs are incorporated into policy design and implementation. In addition, such consultations provide an opportunity for the government to provide more detailed responses to relevant questions, such as *When do the jobs come?, Who will get the jobs?, Where will the jobs be? What type of jobs will they be? What efforts on the part of both the company and the government are in place to maximize the job impact and minimize the negative outcomes on livelihoods?* Frank discussions on these issues can help ensure that community expectations related to job creation tied to investment are realistic. This, in turn, can help communities make more informed decisions when applicable (for example, during free, prior, and informed consent processes), and can also help avert or mitigate tension that can arise when unrealistic expectations cannot be met.
- 10) Governments should also ensure that sustainable closure plans are developed for any large-scale investment, addressing how the negative employment impacts of project closure or failure will be mitigated. Governments and mining companies should also consider establishing programs that focus on mitigating job loss in commodity price downturns.

In addition, in the context of agricultural investment, policymakers should also keep in mind that agricultural investment predicated on land acquisition is only one of many approaches for investment in agriculture. As the type of agricultural investment model used may affect its impact on job creation, livelihoods, or poverty reduction, governments should think carefully about the type of investment they wish to attract and encourage. Apart from investments that require land transactions, other options for public or private investment include investing in smallholder production, or using a more inclusive business approach to incorporate and support smallholder farmers. Such

models may be more beneficial from a number of perspectives, including employment outcomes, provided that they are structured equitably and with sufficient safeguards.

Of course, as employment impacts are context-specific, so are policy solutions. Efforts to optimize the employment impact of investments thus must be tailored to the particular contexts for which they are proposed. This is easier to say than to do. In some situations, this may require a more nuanced understanding of the margins of maneuver for investors in terms of adapting their employment practices to national and local needs. In other situations, governments may need to undertake more targeted efforts to ensure that local development planning is used to maximize the potential employment and growth impact resulting from induced employment, which is not always sufficiently incorporated in such planning. In any case, a thorough understanding by governments of the relevant contextual variables related to employment from natural resource investments can help both in designing policies and evaluating potential investments.

The context-specificity of policies extends to policymaking as well. The effective design and implementation of natural resource-based employment policies is largely a political question, and will be influenced by the political landscape. As has been concluded elsewhere, any recommendations on linkage policies must “reflect a ‘good fit’ with local contexts, institutions and politics, and not only the ‘best practices’ that donors typically advocate.”<sup>295</sup>

With this report, our first objective was to clarify the processes and impacts of job creation driven by large-scale mining and agricultural investments. Such investment creates jobs, but how many and with what impact is not always clear. A deeper understanding of the topic helps policymakers, citizens, and others assess employment claims made in the context of investment in mining or large-scale agricultural projects. Our second objective was to suggest ways in which public sector actors can implement policies to improve employment outcomes from such investments. These suggestions provide a starting point for policymakers to reconsider existing policies and consider new ones, but they do not constitute a one-size-fits-all blueprint.

A fuller accounting of the employment impacts of investments presents governments with a difficult task: developing approaches that are aligned with best practices but fine-tuned to local contexts, that improve the direct, indirect, and induced job creation outcomes of investments while addressing the disparate needs and expectations of both

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<sup>295</sup> L. Buur, O. Therkildsen, M. Hansen, and M. Kjær. Extractive Natural Resource Development: Governance, Linkages and Aid, Danish Institute for International Studies Working Paper No. 28 (2013).

investors and citizens. Although complicated, such efforts are important for ensuring that the expected employment benefits of such investments do indeed materialize.



# Columbia Center on Sustainable Investment

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